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The Massachusetts Medical Society

The next annual meeting of the Massachusetts Medical Society will be held in Boston, Monday, Tuesday and Wednesday, June 8, 9 and 10, 1931.

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VOLUME 203 DECEMBER 18, 1930 NUMBER 25

IDIOPATHIC APLASTIC ANEMIA

With Report of a Case in a Child of Nine Years Having Unusual Bone Pathology

BY J. HAROLD ROOT, M.D.*

THE scarcity of reported cases of idiopathic aplastic anemia in childhood, and the lack of, or at most brief, pathological discussions have prompted me to present this case.

Aplastic anemia was originally described by Ehrlich[1] in 1888. In 1919, Smith[2] reported a case and reviewed 64 cases found in the literature up to that time. His summary of the cases shows that 31 were male, 30 female, and 3 unspecified. The average age of 61 patients was 29½ years, the youngest being 2 years, the oldest 68 years. The average duration of the disease in the 50 cases was 3 months, the shortest 4 days, the longest 1½ years. The hemoglobin average in 33 cases was 17%; highest 35%, lowest 10%. The average number of red cells in 47 cases was 1,000,000; lowest 200,000, highest 2,200,000. The average white count in 44 cases was 3000; highest 40,000, lowest 250. Smith says that many of the cases reviewed are typical, several most questionable, and two or three present features which seem to exclude them from this classification as it is now defined. Many cases, also, present no pathological data; these are considered doubtful.

In reviewing the literature since 1918, I have been able to find 20 additional cases which are summarized in Table I, and several other cases which have not been verified, but which have been included, nevertheless, in the appended list of references.

TABLE I

STATISTICAL SUMMARY OF CASES OF APLASTIC ANEMIA

Author	Sex	Age, yrs.	Duration	Hgb.	Erythrocytes	Leukocytes	Bone marrow
Parkinson[3]	M	12	1 mo.	33	434,000	2700	Replaced by fat
Rennie[4]—Case 1	M	67	6 wks.	5	775,000	15,500	Fatty
Rennie[4]—Case 2		(Died in day or two before blood examination)					Fatty
Rennie[4]—Case 3	F	13	3 mos.	20	723,700	3800	No autopsy
Rennie[4]—Case 4	M	24	2 mos.	12	860,000	3600	Fatty
Lasnier[5]	F	3	10 wks.	(Necropsy showed evidence of primary aplastic anemia)			
Thursfield[6]	F	11	7 mos.	30	1,140,000	5200	Fatty
Herrman[7]	F	4	Recovered	25	750,000	2500	
Spak[8]	M	4					
Faberi[9]		6	Recovered	15	1,430,000	7520	
Marsh[10]	M	17	7 mos.	15	720,000	2400	Fatty
Fleming and Davidson[11]		26	3 yrs.	35	2,440,000	4400	Fatty
	F		(After 4 mos.)	15	747,000	2700	
Young[12]	F	4	8 wks.	20	710,000	5900	Fatty
Kingsbury[13]	M	22	1½ yrs.	28	1,450,000	3600	Fatty
Cabot[14]	M	41	2½ mos.	50	1,376,000	2900	Fatty
Koehler[15]—Case 1	F	57		30	1,200,000	200	
Koehler[15]—Case 2	M	25		54	2,100,000	2300	
Bruce[16]	M	2	6 wks.	35	1,860,000	6600	No autopsy
Conner[17]	F	19	2 mos.	30	1,540,000	2800	Fatty
Fournier[18]	F	18	7 wks.	30	1,900,000	900	No autopsy

The diagnosis in some of the cases summarized in Table I is not without question, because of lack of pathological data. Most of them presented a typical course, and typical pathological changes; some of them showed a typical course, but were without confirmatory autopsy, while in at least one case, that of Cabot[14], the diagnosis was made at the postmortem examination, the course and blood findings of the case not being typical. Of 20 cases 9 were males, 9 females, 2 unspecified. Of 19 cases, the average age was 19.7 years; oldest 57, youngest 2. The average duration of 16 cases was 5¾ months, longest 3 years, shortest 12 days. Of 18 cases, the average hemoglobin was 27%; highest 54%, lowest 5%. The average number of red cells in 18 cases was 1,247,537; highest 2,440,000, lowest

*Root—Attending Pediatrician, Waterbury Hospital. For record and address of author see "This Week's Issue", page 1260.

434,000. The average white count of 18 cases was 4,195; highest 15,500, lowest 200.

The following case illustrates the typical clinical course and features of idiopathic aplastic anemia:

Edward P., a 9 year old boy, admitted to the Waterbury Hospital, October 25, 1929; died November 30, 1929. Chief Complaint:—general weakness and indefinite joint pains of one month's duration.

Family History:
Essentially negative; mother, one brother and three sisters living and well; father dead, cause unknown.

Past History:
No feeding difficulties or illnesses in infancy. Scarlet fever at two years of age with no complications. No other childhood diseases. Always considered delicate and high strung, but physically active, and able to keep up in school.

Present Illness dated from a fall on his back, one month ago, since which time there had been complaint of indefinite joint pains, he had tired easily, and been able to do very little. At no time was there evidence of back injury or swelling of any joint. For the month prior to admission the patient had been at home under medical treatment (massage, tonic), from which no benefit resulted. There was a history of increasing malaise, anorexia, and recently development of a yellowish tinge to the skin.

Prior to injury the school nurse thought the patient in good health; the nurse at a camp which the patient attended also reported his condition satisfactory during the past summer. For the week prior to admission the patient was thought to have had temperature about 101° F., highest at night.

Physical examination on admission:
A poorly nourished, and developed white boy, lying quietly in bed with no complaints; marked pallor, yellowish tinge to skin.

Skin: No eruption or pigmentation.

Sclerae: Very pale as are all mucous membranes.

Superficial lymph nodes: Not enlarged except for a few pea-sized cervicals.

Tonsils: Enlarged and ragged; no exudate or inflammation.

Teeth: Carious with some redness and swelling of the gum around the first upper right molar.

Lungs: No abnormalities.

Heart: Slightly enlarged, especially to right; a systolic murmur heard over precordium, loudest at the base, and transmitted faintly to axilla.

Liver and Spleen: Not palpable.

The physical examination otherwise essentially negative. On exertion, dyspnea and markedly increased pulse rate occur.

Laboratory Examination Oct. 26, 1929:
Urine negative. Wassermann test negative. Blood culture negative. Feces negative for ova, parasites, blood, and undigested food. Intradermal tuberculin test, with 0.1 mil. old tuberculin negative. The hemoglobin (Dare) was 40%. (By the Dare method normal Hgb. is 13.77 grams per 100 c.c. blood. In children of nine years about 12 grams per 100 c.c. is normal Hgb.) Red cells 1,720,000; white cells 5200; neutrophiles 48%; large mononuclears 1%; lymphocytes 49%; normoblasts, 2 seen; few microcytes; platelets 80,000. Red cells showed regularity in shape, marked pallor, slight variation in size, occasional large cells, no stippling. About one-half of red cells show central pallor; others stain uniformly; an occasional oval or club shaped cell seen. The color index was 1.1. Blood group 2, (Jansky). Table II shows the blood counts, dates of transfusions and amounts of blood given. After the fifth and again after the sixth transfusion the temperature rose and pulse became more rapid for a few hours. There was no chill or other signs of reaction.

TABLE II

Blood:	10-26-29	10-28-29	11-4-29	11-8-29	11-11-29	11-15-29	11-19-29	11-23-29	11-26-29	11-29-29
Hemoglobin	40	23	40	37	38	35	35	28	25	12
Color Index	1.1	1.1	1.	.9	1.	.9	.9	1.	.8	.6
Red Cells	1,720,000	1,000,000	1,900,000	1,980,000	1,960,000	1,910,000	1,960,000	1,390,000	1,650,000	1,190,000
White Cells	5200	5400	5800	7500	7000	5800	4700	4400	7650	7000
Neutrophiles	48	52	50	63	58	54	54	60	59	63
Mononuclears	1	2	2	1	1	3	3	3	1	
Lymphocytes	49	44	46	34	40	43	43	38	38	40
Normoblasts	2	2		1	2					
Platelets		80,000	80,000		70,000					
Microcytes	Few				Few					

The patient was transfused on the following dates:

October 29, 1929—200 c.c. of citrated blood
November 2, 1929—250 " " " "
" 6, 1929— " " " " "
" 10, 1929— " " " " "
" 15, 1929—300 " " " "
" 18, 1929—250 " " " "

Iron oxide was given from October 29 to November 20, 30 grains daily, and liver extract (one ampule, Lilly) twice daily for a time, without benefit. Fluids were given by hypodermoclysis and by intravenous route when indicated.

After the first few transfusions there was a marked improvement in the boy's condition—better appetite, improved color; he showed more interest in his surroundings, was happier, more energetic. From November 8, however, in spite of further transfusions, his general condition grew steadily worse.

The urine remained consistently negative.

The hemoglobin varied from 40% at first, to 25% three days before death, and to 12% the day before death. The red count gradually dropped to 1,190,000 the day before death. The platelets dropped to 70,000 on November 11, and although no more platelet counts were taken, the number seen in smears thereafter, appeared to be slightly further diminished. The white count varied between 4,400 and 7,650, being 7,000 the day before death; average 6,063. The differential count usually showed a slight relative increase in the lymphocytes, 49% the highest and 37% the lowest, averaging 41.7%. No normoblasts were seen after November 8; megaloblasts rarely; occa-

sional microcytes seen. No stippling seen at any time; reticulated cells seen rarely. Slight anisocytosis present and achromia at all times. Color index remained high, usually over 1 until shortly before death, when it dropped to .6.

Slight epistaxis occurred for the first time November 10, and occasionally thereafter. A small amount of blood was vomited several times after November 10, and old blood occurred in the stools occasionally; no other evidences of hemorrhage were found. His heart enlarged during the latter part of his illness and the systolic murmur became louder. The liver became palpable during the last week of life; the spleen was never palpated. The most prominent general symptoms were nausea and weakness. The skin became more yellow in color toward the last; the sclerae were very pale, but never icteric.

An electrocardiogram taken November 26, showed tachycardia, sinus rhythm slurring of QRS in lead 1, and inverted T waves in 2 and 3, suggesting myocardial damage.

His temperature was 100° F. on admission, and went up to 101° twice during the first week and occasionally thereafter. It rose sharply after the last two transfusions for a few hours only. It ranged from 98 to 100° F. most of the time during the illness. The patient died November 30, 1929.

Pathological report by Dr. Ada H. Walker.

Body that of an emaciated boy, about nine years of age. Skin pale, conjunctivae pale. No glandular enlargement.

Usual mid-line incision. Muscles pale, stringy. Fat over thorax and abdomen pale, straw-colored, scant. Organs in normal position.

Pleural cavities both contained considerable amount of clear, straw-colored fluid. Pericardium smooth; sac contained about 5 c.c. of clear fluid.

Heart:
Weight 210 grams; muscle pale; valves normal in appearance; vessels not unusual.

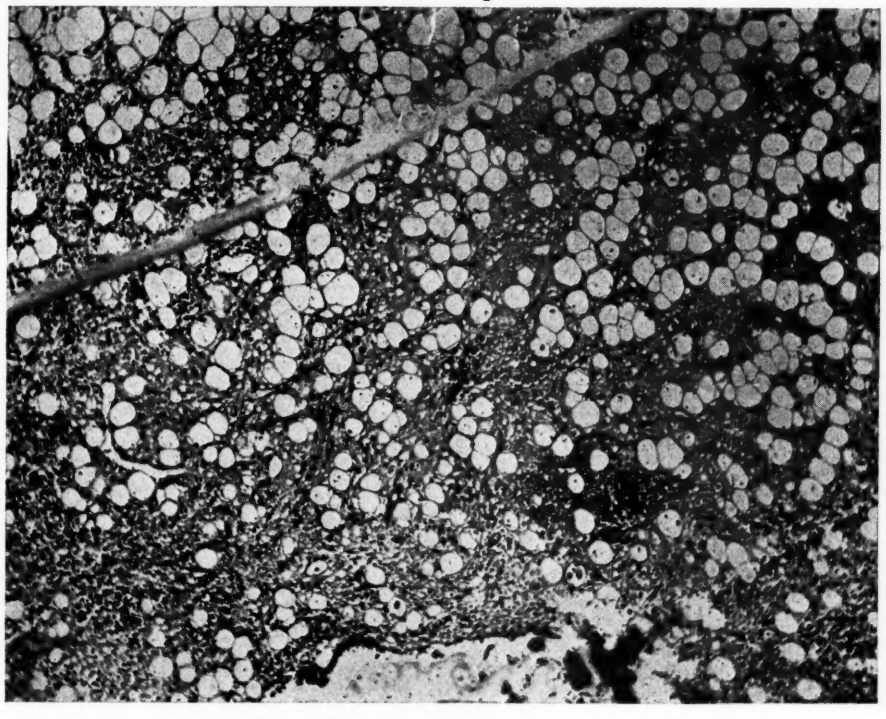
Lungs:
Pale in appearance; left shows few mottled purple areas on outer surface; right adherent posteriorly and to diaphragm by thin fibrous bands which break readily. Bronchial lymph nodes not enlarged.

Kidneys:
Left, weight 104 grams; right, 104 grams; capsules strip easily; few small hemorrhages on the surface of the right kidney beneath capsule; otherwise negative.

Liver:
Weight, 820 grams; color yellowish-brown; capsule smooth, markings do not appear unusual; gall-bladder, normal.

Spleen:
Weight, 90 grams; color red-purple; small hemorrhages beneath capsule, largest about 2 cm. in diameter.

Adrenals:
Slightly enlarged.



BONE MARROW—SECTION I.
Bone Marrow—cross section tibia × 85. Adult fat cells with scattered islands of lymphocytes and red blood cells.

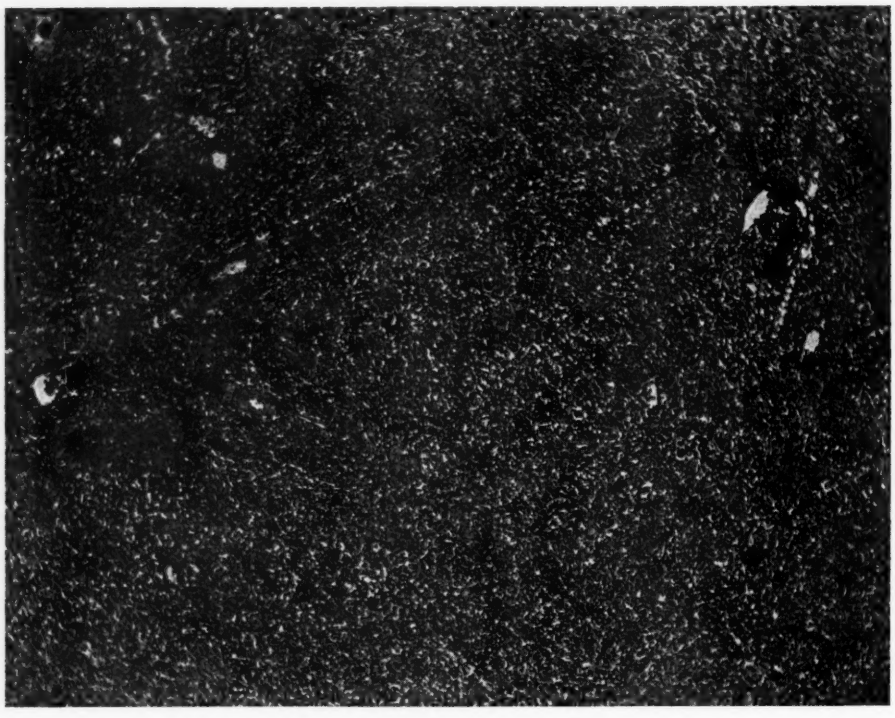
Pancreas:
Yellowish-white, unusually firm.

Intestines:
Mucosa pale; no hemorrhages. Appendix free. Mesenteric glands not enlarged.

Bone Marrow Section from tibia, middle portion:
Macroscopic: Consistency of thick purulent exudate; color pale with many pin-point and larger dark brown areas, giving it a patchy or mottled appearance.
Microscopic: (See Sections I and II). Low magnification.
Many areas with considerable numbers of white cells and few scattered clusters of red; adjacent areas show dearth of blood cells but many adult fat cells. High magnification: There appears to be an absence of any attempt of regeneration of red cells. No normoblasts or immature red cells

BONE MARROW—SECTION II.

Bone Marrow—cross section tibia × 60. Extensive infiltration by lymphocytes, myelocytes, etc.



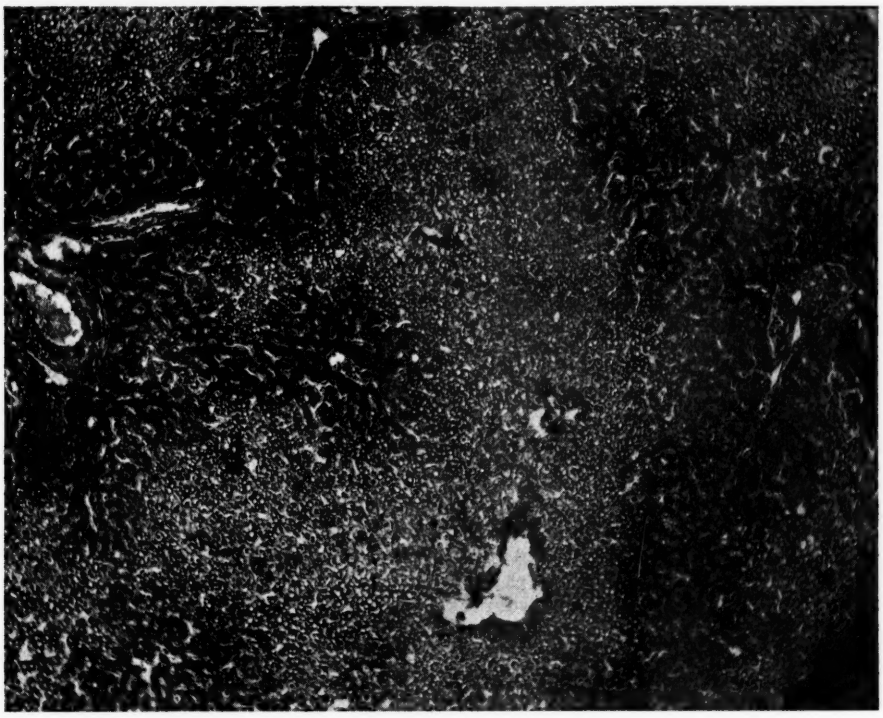
SECTION III.

Spleen × 85 showing increased cells in red pulp.

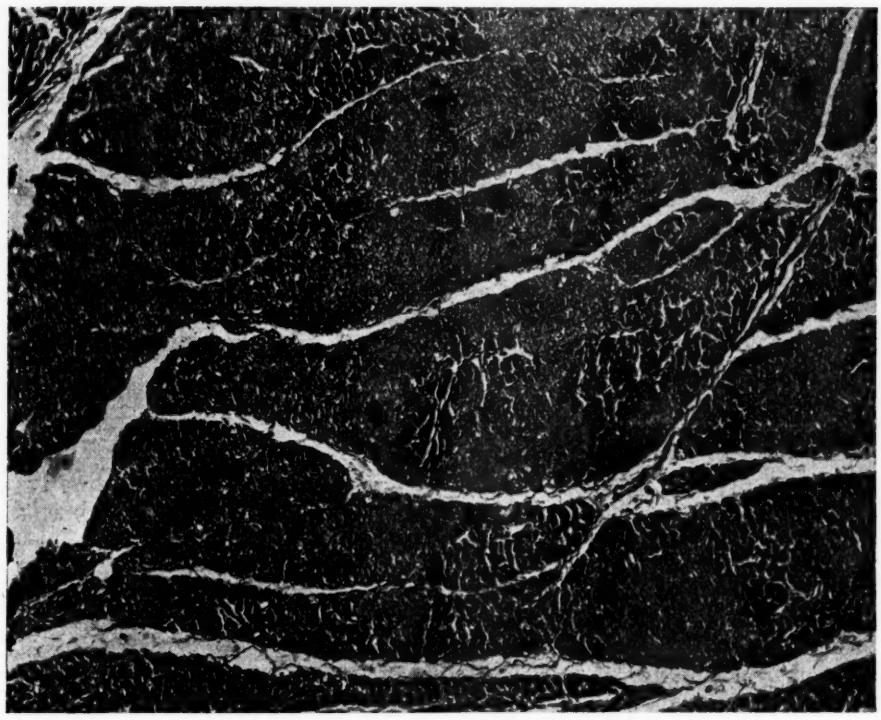
observed. The red cells present appear fairly uniform in size and shape and in staining qualities. Slight hemosiderin deposits in the clusters of red cells. The prevalent white cell is the small lymphocyte, which far outnumbers all other cells combined.

There are a number of eosinophilic and neutrophilic myelocytes with scattered fibroblasts and an occasional large endothelial cell.

A few megakaryocytes and an occasional multinuclear cell observed. The vessels for the most part are empty.



LIVER—SECTION IV.
Liver × 85, showing central necrosis. A—Portal space.



SECTION V.
Heart × 85. Early degeneration of fibres.

Spleen: (See Section III.)
The fibrous capsule does not appear thickened. There is, possibly, slight increase in fibrous tissue about some of the vessels. The vessels, otherwise, are normal with the exception of a large vein which contains a clear serum-like exudate partially filling the lumen, in which are seen a number of lymphocytes toward the periphery. The Malpighian bodies do not appear unusual. The pulp consists of a number of endothelial cells, red blood cells and some small lymphocytes, a few eosinophile, and neutrophile myelocytes with an occasional giant and plasma cell. There is some hemosiderin scattered throughout.

Liver: (See Section IV.)
There is considerable fatty degeneration espe-

cially about the central vein. The cells are edematous and the cytoplasm has undergone cloudy swelling and fatty change and a few of the cells show slight brown atrophy. The bile ducts are normal. Occasionally about the portal vessels there appear a few lymphocytes and an occasional leukocyte.

Heart: (See Section V.)
Tissue edematous; fibres show cloudy swelling and some fatty degeneration; markings are indistinct. Nuclei vary in size and shape, some are oval, some oblong; in some of fibres nuclei are missing. Vessels are negative. No cellular infiltration.

Lung: Many of the alveoli coalesce and the epithelium lining is desquamated and lies within the alveoli. There are a few leukocytes and lymphocytes and a number of large mononuclear cells, many of which contain slight brown pigmentation. Bronchi contain clear serous exudate, a few cells from the desquamated epithelial lining. Small localized area of hemorrhage. Other vessels negative.

Pancreas:
Lobulation appears normal; cells lining acini show some degeneration; center of acini contain clear serous fluid; slight increase of fibrous tissue about vessels.

Kidney:
Stains uniformly; glomeruli do not vary to any extent in size or shape, cytoplasm of the cells slightly clouded. The cells lining the tubules are edematous and the cytoplasm shows slight cloudy swelling, occasional nucleus missing or desquamated cell. Vessels negative.

Adrenal:
Vessels at periphery engorged; cells somewhat edematous and show slight cloudy degeneration.

COMMENT

This case presents the usual clinical course and features of idiopathic aplastic anemia. Competent observers, such as the nurse at camp in the summer and the school nurse during the fall, had thought the boy to be in good health until the onset of the present illness with malaise and anorexia. This was dated from a fall, but on close questioning, no history of definite injury was obtained, and the fall, apparently, played no other part in the picture than to cause closer observation of the child, with resulting notice of the symptoms as described. There was no evidence of infection, or drug poisoning in the history, and at no time was a focus of infection demonstrated except an infected upper molar discovered during the child's stay in the hospital. A higher color index was found than is reported in many cases, not so high, however, as in one of Rennie's[4] cases and no higher than in the case reported by Fleming and Davidson[11], and others in the literature reported. The other blood findings, the course, the lack of response to treatment, and the termination coincide with the other reports.

In the differential diagnosis, pernicious anemia, leukemia in the aleukemic stage, some form of purpura, and secondary anemia from drug poisonings, chronic infection, or other cause must be considered.

Secondary anemia may be ruled out because of definite lack of any history of poisoning, chronic infection, or parasitic infection, and the lack of evidence of any one of them on physical or laboratory examination. The rapid course of the disease, the lack of remissions and evidence of regeneration of red blood cells, the failure to respond to liver therapy and the lack of gastric or other symptoms associated with pernicious anemia, eliminate this diagnosis.

Leukemia in the aleukemic stage can be excluded by the continued absence of the characteristic immature cells throughout the course of the disease, and by the pathological findings.

The various forms of purpura can, likewise, be excluded except that form associated with anemias in general, because of the character of the blood findings, and minor part which purpuric manifestations played in our patient.

The autopsy findings, as will be seen, give no support to any of the preceding diagnoses, except that they are consistent with those found in an aplastic anemia from any cause. The pathological examination of the bone marrow shows less fatty degeneration than is commonly described in the cases of idiopathic aplastic anemia, and in fact shows a hyperplasia in many areas. The predominating cell in these areas is the small lymphocyte, however, which far outnumbers the other cells combined, and the red cells do not appear altered in size or shape, no immature red cells being found. In a few areas a relative increase in myeloblasts is found with an occasional eosinophilic myelocyte.

From the pathological findings alone, a definite diagnosis of idiopathic aplastic anemia cannot be made, but from the history, physical examination, clinical course, laboratory findings, and pathological findings combined, it seems that by exclusion of other causes, this case can be considered one of idiopathic aplastic anemia, which is thought by some to be due to a circulating toxin, and by others to be due to a primary aplasia of the bone marrow.

DISCUSSION

Aplastic anemia, as originally described by Ehrlich[1], is produced by aplasia of the bone marrow, resulting in reduction or failure of blood regeneration. In complete aplasia, the red bone marrow is replaced by a fatty, grayish or yellowish gelatinous marrow.

Blumer[19] says that the disease is one of young adult life, three or four times as common in women as men. In Tice's "Practice of Medicine"[20], Greene states that the disease shows male predominance (20 per cent.,) falling chiefly between the ages of twenty and forty, but occurring in childhood and old age. Smith[2] reports the average age in 61 cases reviewed, as 29½ years, 31 of the cases being males and 30 females.

Defective bone marrow functioning may be

produced by benzol, radium, x-ray, or trinitrotoluene. Duke[21] reports a case of secondary aplastic anemia of some years' duration caused by dietary insufficiency, due to a very small stomach. The fish tapeworm and other intestinal parasites at times produce an aplastic condition of the bone marrow. Syphilis and tuberculosis, lead or other drug poisonings, gas poisoning, severe infections with protracted convalescence, such as typhoid or sepsis, may produce temporary, or even progressive aplastic states of the bone marrow. Williams[22] reports two cases caused by trinitrotoluene; Larkins[23], one caused by x-ray.

Idiopathic aplastic anemia, on the other hand, is less common. There is, apparently, no blood destruction, the anemia being purely the result of diminished or absent blood regeneration. There are three types of aplastic anemia, depending on the type of cell reduced most. If the platelets show the greater decrease, purpuric symptoms are the most prominent; if the white blood cells, a fulminating infection is likely to occur; and if the red blood cells are decreased most, anemia is the chief symptom. The red blood cells, according to most observers, show slight, if any, alteration in size and shape, but are greatly reduced in number, sometimes to less than one million. The color index is reported usually as being less than 1. One of Rennie's[4] four cases had a color index of 1.3 and in his paper he speaks of Turk and Patton both as giving the color index high. Fleming and Davidson[11] report a color index of 1.1 in their patient. Nucleated cells are rarely, if ever, found. Stippling and polychromatophilia do not appear. The reticulated red blood cells are reduced in number. The white blood cells are reduced with usually a relative increase in the lymphocytes of the small type. The coagulation time is lengthened. Complete hemolysis of the red blood cells occurs in a solution of higher strength than is required for the normal cell.

The onset usually is gradual, with malaise, anorexia and increasing pallor, as in the case described. The duration is a few weeks to a few months, as a rule, but Kingsbury's[13] patient lived one and one half years, and Fleming and Davidson's[11] three years. Fever is usually present.

The prognosis is almost invariably fatal, although Herrman[7] reports a case with recovery, and refers in his paper to a patient of Parkinson's[24] and one of Benecke's[25], who recovered. Faberi[9], also, reports a case treated by x-ray with recovery.

SUMMARY

1—A review of the cases of primary aplastic anemia found in the literature is presented.

2—A case of idiopathic aplastic anemia in a child of nine years is reported.

3—A summary of the clinical features and findings of primary aplastic anemia is given.

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CHRONIC RHEUMATISM IN MASSACHUSETTS*

BY GEORGE H. BIGELOW, M.D.,† AND HERBERT L. LOMBARD, M.D.†

DURING the past five years one death out of every nine has been certified as cancer; one out of every five as heart disease; one out of every twelve as apoplexy; one out of every fifteen as chronic nephritis; and one out of every 758 as chronic rheumatism. This last figure is so small in comparison to the others as to be almost negligible, yet rheumatism is not as innocuous as the death returns might indicate for while only a small percentage of the population dies with the disease, a much larger percentage is afflicted and the duration of incapacity is much longer.

During our cancer survey of 1925 we frequently encountered hospital executives and physicians who told us that though the cancer problem was large and the death rate was steadily increasing, this problem was small in comparison to that of chronic arthritis, both from a humanitarian and economic standpoint. Diseases that cause death come to the attention of the general public far more forcibly than do those which practically never kill, but confine the individual to his bed over long periods of time.

In the course of the survey on chronic disease conducted by the Department in 1929 and 1930‡, pertinent facts regarding rheumatism have been obtained. These give some indication of the extent of the disease in Massachusetts as well as information on its care and treatment.

The survey of 1929 covered approximately 1 per cent. of the total population of the State and the survey of 1930 1 per cent. of the population over forty years of age. As the communities covered were selected both from a geographical standpoint and from numerical size, it is believed that conditions in these communities may well represent those for the State as a whole. The following figures are compiled with that assumption:

At any one time there are approximately 145,000 individuals in Massachusetts suffering with rheumatism; 89,000 with heart disease; 56,000 with arteriosclerosis; 31,000 with nephritis; and 10,000 with cancer. Rheumatism is the greatest single cause of chronic illness in Massachusetts. Nearly 85 per cent. of the cases of rheumatism are in individuals over forty years of age. We have confined our rheumatism findings to the over forty group.

The rheumatism group surveyed in 1930 comprised 1176 individuals and 84.6 per cent of this number were told by physicians the nature of their complaint. About three-fourths (73.3 per cent.) of the cases of rheumatism complained of arthritis, one-sixth of neuritis or neuralgia, and one-twelfth of myositis or myalgia.

Rheumatism patients as a rule are not receiving treatment from physicians. At the time of the survey, 67.9 per cent. were either treating themselves or receiving no treatment. This rate varied with the economic status of the patient. In the well-to-do group, 50.0 per cent. were receiving self or no treatment and in the poor group, 75.7 per cent. During the past year, 30.0 per cent. of the well-to-do and 58.2 per cent. of the poor received either self or no treatment. As we go down the economic scale, the percentage of rheumatics receiving either self or no treatment increases.

When questioned as to the reason for not employing a physician nearly one-half of the group (46.1 per cent.) said that the doctor could not help them and one-eighth of the group (12.5 per cent.) gave economic reasons. Only a small percentage of the individuals received hospital care or nursing care during the preceding year, the hospitalization rate being 0.6 per cent. and the nursing rate 0.9 per cent. About 1 per cent. of the group felt they needed nurses but were unable to have them due to economic reasons.

The median age of the patients with rheumatism was 62.6 years and the median age at the onset of the disease was 51 years. The average duration of the disease to the present time was 11.6 years. The total duration obviously would be longer.

Complete physical disability was present in 4.2 per cent. of the cases of rheumatism and partial physical disability in 30.4 per cent. If similar conditions exist throughout the State as in the surveyed communities, at the present time there are approximately 5,000 individuals in Massachusetts over forty completely disabled by rheumatism. Among the poor the complete disability rate was significantly higher, being 7.1 per cent. The average duration of disability during the past year among those confined to the bed was 2.3 months and among those confined to the chair, 4.5 months. The average duration of partial disability was 6.1 months. Some individuals had only one type of disability, while others had all three during the year.

The suitability of the home for caring for the patients with rheumatism was poor in 12.2 per cent. of all the cases and in 12.0 per cent. of the completely disabled group. This indicates that 600 individuals in Massachusetts completely disabled with rheumatism are living in homes wholly unsuited for their care.

Wage earners comprised 34.2 per cent. of the rheumatic group and 51.0 per cent. of the total group. Among the group over forty, rheumatism is not so prevalent among wage earners as

*From the Massachusetts Department of Public Health.

‡"Chronic Disease in Massachusetts." (In preparation.)

†Bigelow—Commissioner of Public Health for Massachusetts. Lombard—Director, Division of Adult Hygiene, Massachusetts Department of Public Health. For records and addresses of authors see "This Week's Issue", page 1260.

among non-wage earners. About one-eighth (12.2 per cent.) of the wage earners who were sick with rheumatism were completely disabled economically at the time of the survey and another eighth, (12.2 per cent.) were partially disabled. Assuming that the ratio of wage earners over forty years of age to non-wage earners is the same in Massachusetts as in the survey, and assuming both the rates for rheumatism and disability to be constant, and again assuming the average daily wage to be $4.00, which is probably too low for this group, there would be lost in one day's time by chronic rheumatism approximately $25,000.

During the past year 46.5 per cent. of the wage earners with rheumatism lost an average period of 4.6 months from work. Applying this figure to the total wage earners in the survey gives 0.9 per cent. of total working time lost by chronic rheumatism during the past year, which for Massachusetts as a whole is approximately 6,500 years of work lost per year by rheumatism. The yearly economic loss by chronic rheumatism computed by either of the above methods totals nearly eight million dollars.

Chronic rheumatism demands more and better nursing service, better clinical facilities, and more hospitalization. If more extensive visiting nursing service was furnished there would be less suffering on the part of many citizens of Massachusetts. The visiting nursing service throughout the State is doing admirable work but its efficiency would be increased if more funds were available.

The problem of clinical service in rheumatism is difficult. About two-thirds of the individuals sick are receiving no medical attention. A part of this is due to ignorance, a part to lack of faith in physicians, a part to economic conditions, and a considerable part to the fact that the doctors they have employed to help them are themselves discouraged in treating this disease. In rheumatism specialized advice and adequate clinical facilities will produce excellent results, but the average physician is uninformed as to what this advice should be and he does not have ready access to the expensive therapeutic equipment.

At the Robert Breck Brigham Hospital, Dr. Francis Hall reports good results in 66 per cent. of the cases and partial results in 29 per cent., making a total of 95 per cent. helped. In Europe, hospital facilities for arthritis have been in vogue for several years. In England, there are six spas, which, during the past five years, have treated 13,224 cases of chronic arthritis. In Sweden, there are four hospitals which treat annually 800 cases of chronic arthritis. There are a number of spas in Germany which treat rheumatic patients. In all of these institutions favorable results are reported in many cases.

In this country the facilities for rheumatics are far too inadequate. No Public Health Department has as yet attacked the problem and the findings enumerated in this paper are the first official attempt to even measure the needs. As a result of the study, we feel that a program should be inaugurated to cover both the clinical and educational sides. Hospitalization should be made available for the more difficult cases and diagnostic clinics similar to the State-aided cancer clinics should furnish advice for the less difficult cases. The laity should be stimulated to seek advice at earlier periods and a spirit of hopefulness rather than of despair should be encouraged. No one has the temerity to state the proportion of cases that may be prevented. Work along this line will, of course, be the most important part of any program. All this should be incorporated in a program of rheumatism control by the State Department of Public Health.

Such a program will strengthen the relationship between the medical profession, official government and the people, and will push State Medicine in its offensive form farther into the background.

THE PROLONGATION OF LIFE*

BY OLIVER H. HOWE, M.D.†

THE function of the physician is three-fold: to relieve suffering, to cure the sick, and to prolong life. In reference to the first, the general practitioner spends much time in relieving painful affections of temporary nature, not connected with serious illness but important for the comfort and well-being of the patient, conducive to efficiency and tending to reduce the wear and tear of life.

In the second constituent of his function, we have the realm of acute disease, in which many a battle is waged and the result dependent on good management and the prompt relief of pain. Chronic disease, unfortunately, is usually progressive, but here alleviation of suffering is important, and careful study may serve to delay unfavorable events for an indefinite time.

The third functional activity, prolonging life, is a more severe test of his efficiency and perhaps a more accurate one than either of the others. Do our efforts serve to prolong life? In individual cases, of course, we accomplish this, but do we prolong the collective life of the race? A discussion of this question will form the subject of this paper.

A study of the average length of life in the United States since the beginning of the nineteenth century shows marked progress in this

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†Howe—Medical Examiner, Norfolk County, District No. 2 since 1887. For record and address of author see "This Week's Issue", page 1260.

regard. In 1800 the average length of life was 33 years; in 1855 it was 40 years; in 1920 it was 58 years; and in 1929, 59.1 years. It is found that women live a year or two longer than men. These statistics are an average of the whole population.

Gratifying as are these figures, we find on analysis that most of the gain is due to control of the diseases of childhood and adolescence. Insurance tables of expectation of life show little or no gain after the age of 30.

As we well know, clean milk, rational feeding of infants, control of diphtheria and other favorable measures have enabled larger numbers of infants to grow up. Even in the middle of the nineteenth century in England, according to Professor Irving Fisher, "one quarter of all the people born would die before reaching the age of five years and half of them would die before reaching the age of 45. At the present time half will die only after reaching the age of 65", a very marked improvement.

The upper limit of life, known as the "life-span", hovers about the century mark, and there is a great deal of speculation as to whether it is a fixed limit, or whether it will in time be commonly exceeded. Professor Irving Fisher believes that the century mark is not impassable and that there is fair reason for a progressive advance. However, the fact that the number of centenarians is now very small, and of those exceeding 100 years still smaller, gives rise to hesitation on the part of Dr. Louis I. Dublin and of most life insurance actuaries. Many of those reaching or exceeding the century mark are so infirm that life is a burden. Efforts to extend the extreme limit of life need give us no unusual concern.

Perhaps someone will say: "What is the use of prolonging life after a person's work is done?" Of course we would not say this in regard to our own fathers and mothers. With relation to those advanced in life we have abundant evidence that comfortable living is not by any means limited by the "three-score years and ten". We should not, therefore, grudge the enjoyment of a well-earned period of Indian Summer sunshine in the later years of life. We all know such individuals, whose mental, and perhaps physical powers are well preserved. The world would be much poorer if deprived of the rich experience and wisdom of these people.

Viewing the present average lifetime as 59 years, this means that half the individuals die before that age and half die beyond it. Many die in the fifties, forties and thirties: cut off in the years of greatest usefulness and of greatest obligation to their families and to the community. It is in these years before 70 that we physicians can accomplish the greatest good in prolonging life. Let us hope that the average length of life will not remain at 59.1, but will extend to at least 70 years.

It is a reproach to our profession that this period between 30 and 70 has not recorded any advance in expectation of life—the more so because so many preventable causes of death occur in that period. The selective military draft in the recent World War showed a high percentage of defects in our man power, and most of these were preventable.

The extent and difficulties of our problem can be measured by studying the causes of death in Massachusetts in the year 1929. The list of diseases is a long one, and in many cases attempts at comparison with other years show fluctuation from year to year with consequent gains and losses. It will suffice in this discussion to mention a few of the most frequent diseases which show a well marked trend either of increased or diminished death rate.

In 1929 the deaths from heart disease numbered 11,528, or 22.1 per cent. of all deaths. If we include deaths from other parts of the circulatory system, we find a total of 13,972, raising the percentage to 26.8, which, compared with statistics of 1925, shows an increase of nearly 4 per cent. in five years.

Deaths from cancer and other malignant tumors were 5,672 in 1929, an increase of about 600 in five years, raising the percentage about 1 per cent. According to Dr. George H. Bigelow, Commissioner of Public Health for Massachusetts, cancer has increased more than 50 per cent. in the past 25 years and now shows a percentage of 10.9 per cent., so that about one person in eleven dies of cancer.

Pneumonia shows a slight diminution of 4/10 of one per cent., compared with five years ago, but in the intervening years shows considerable fluctuation, undoubtedly due to seasonal and epidemic conditions.

Deaths from Bright's disease and acute nephritis have increased 8/10 of one per cent. in five years, numbering 3,460 in 1929, or 6.6 per cent. The diseases last mentioned account for 48.5 per cent. of all deaths.

To refer to some diseases that have become less frequent, typhoid fever caused only 42 deaths in 1929, comparing favorably with 73 deaths in 1925. The deaths from scarlet fever were only 71 compared with 117 in 1925. Tuberculosis of the respiratory system has been reduced from 2883 to 2561 deaths in five years.

Diseases of the nervous system and the organs of special sense have been materially reduced from 6367 to 5451, and from 12.3 per cent. to 10.5 per cent. in five years, although I suspect the higher rate in 1925 may have included some results of the World War.

Diphtheria and croup have been slightly decreased, although the great reduction in mortality due to antitoxin occurred in previous years.

Death from diseases of the digestive system have been reduced from 3126 in 1925 to 2993 in 1929.

These gains in the mortality record seem small

compared with the increases previously mentioned, but gains would be much greater if statistics were carried back twenty-five or fifty years instead of five years.

The formidable array of deaths from heart disease and cancer is really staggering, but it is well for us to look at these facts just as they are. The record need not dishearten us unless we should be cowardly enough to surrender at the outset. The nineteenth and twentieth centuries have already produced greater advances in the science and art of medicine than all previous recorded time. The vast amount of experience, experiment and research has provided us with a host of new resources and remedies.

Increase of knowledge and of remedies is not enough, however, unless they are put in action. A century and a quarter has not been enough to convince all the people of the benefit of vaccination. Smallpox should long ago have entirely disappeared. We have in the Schick test and treatment the means of stamping out diphtheria, but only a small part of the community is awake to it. Typhoid fever, likewise, should be already abolished, and the prophylactic should be more generally used. The following quotation from Dr. William H. Welch, honored dean of Johns Hopkins Medical School, aptly describes the present situation:

"When a Koch discovers the tubercle bacilli, a Banting discovers insulin for the relief of diabetes, or a von Behring an antitoxin for the cure of diphtheria, or a Park demonstrates the value of the toxin-antitoxin for the prevention of diphtheria, the world draws a long breath as if saying to itself, 'Now we are rid of that terror which has haunted the human race for centuries'. It then straightway forgets and goes on its way comfortably assuming that of course the great discovery or invention is being carried into effect.

"The actual facts are quite different. A few people, those of unusual initiative or ample means, or who happen to be under the care of exceptionally alert physicians, or within the jurisdiction of exceptionally competent health officers, receive the benefits of the new discoveries; but the great mass of the human race goes on as before, and the death rate from these diseases is reduced slowly and over long periods of time.

"In fact, the health field has a woefully ineffective distribution service, as compared with the laboratories of the world. We know how to do a lot of things which we do not do, or do on a wretchedly small scale. Few of the great discoveries of preventive medicine, except the prevention of yellow fever, are anywhere nearly fully applied."

This is an age of preventive medicine. The term is not new to us. It was stressed, a quarter of a century ago, by President Eliot in his dedication of the new buildings of Harvard Medical School. Much earlier than this it was urged, in the sixteenth century, by Sir Francis Bacon, for he wrote the following in his "Advancement of Learning": "This is a new part of medicine and deficient, though the most noble of all; for if it may be supplied, medicine will not then be wholly versed in sordid cures, nor physicians be honored only for necessity, but as dispensers of the greatest earthly happiness that could well be conferred on mortals."

We can wisely act on the principle that it is always better to prevent a disease than to cure it after it is seated. Our time and effort are never better occupied than in prevention; and the more diseases we can wipe off the slate, the better.

The stress of American life is an important factor in wearing out vitality. As a nation, we are keyed up to a pitch unknown in some other countries. Occupational conditions are often detrimental and much thought should be given to the avoidance of industrial accidents and to the welfare of the employed. Dr. Louis I. Dublin, in looking toward the future, advocates: "The further development of that type of efficiency engineering, which will result, not alone in economies of production, but in such economies of human effort which will conserve the health and life of the individual workman."

Public hygiene has made great strides and much has been enacted into law, but it is to the individual hygiene of our patients that our attention should be directed. Rules of hygiene cannot be imposed on adults as on children; their reason must be appealed to and their intelligent coöperation secured.

Some forms of heart disease, as well as arteriosclerosis and Bright's disease, seem to be connected with the wear and tear of life. The physician has an opportunity to know the daily activities of his patients and to advise them in many helpful ways, so as to reduce this wear and tear. Many patients are unconsciously pursuing some injurious manner of life, are harassed with needless worry, or are attempting work beyond their strength. Others are eating or drinking too much, getting too fat, or taking insufficient exercise. Many patients will not follow advice, but some will do so; and all will the more readily listen to it when recovering from illness. We will do well to attend to these matters while awaiting further light on the precise causes of arteriosclerosis, for we can feel assured that normal, rational living will save our patients from many of the evils due to the strain of high-pressure living.

So far as heart disease is caused by infection, there is considerable hope now that focal infections are understood and more promptly treated. Many of them are still untreated, and it is here, as well as in the diminished prevalence of scarlet fever and acute rheumatism, that our hope lies. Recent studies by the Metropolitan Life Insurance Company have demonstrated that there is already a decrease in organic heart

disease in those under 55, due to the diminished prevalence of the causes named.

Cancer is an unsolved riddle. Probably more research is being devoted to this disease than to any other, and we all hope for definite results from it. For the present we must be content with early diagnosis, prompt surgical treatment, and such help as can be obtained from x-ray and radium. Research is yet in its infancy, and the past half century, thickly strewn with valuable discoveries, augurs well for the future.

In lobar pneumonia some progress has been made with serum treatment of types I and II, but further studies are necessary to demonstrate results. Periodical health examinations reveal some unsuspected conditions in the incipient stage, when they can most easily be remedied. The examinations are best made by the family physician because he is conversant with living conditions, individual traits and family tendencies: also because he will use more tact in imparting the results of his examination and giving advice. Some patients, and an occasional doctor, decry such examinations and say they do not want to know what may impend. I wonder whether they apply the same policy to their automobiles or to banks to which they entrust their funds. The greatest care must be used to avoid making the patient morbidly alert about his health; whatever we do, let us not create hypochondriacs.

As no one man can possibly keep abreast of the field of internal medicine (to say nothing of other fields), consultations should be more frequent than they are. We should endeavor to avoid a smug self-sufficiency and should frequently check up our own work, or have it checked by others. It is an occasional experience with all of us to have a consultation, which we thought would add only moral support and confirmation to our treatment, reveal an entirely new aspect of the case and set us on the right track. It goes without saying that we should welcome such new light. Consultations should not be confined to cases of dire necessity or desperation, but should be sought for their constructive value.

The *Journal of the American Medical Association* has annually recorded the average age of all physicians who have died during the year. The number of physicians who died during 1929 was 2,797. A table of the average ages at death, at different periods during the past twenty-five years, is of interest.

In	1905	average	age	at	death	60.3 years
"	1910	"	"	"	"	60.4 "
"	1915	"	"	"	"	60.4 "
"	1920	"	"	"	"	61 "
"	1926	"	"	"	"	62.8 "
"	1927	"	"	"	"	63.1 "
"	1928	"	"	"	"	63.1 "
"	1929	"	"	"	"	64.9 "

This table cannot be coördinated with average ages of the whole population, for the reason that it contains no children and that the individuals are all of the same profession. It does, however, show a progressive increase, without recession, in the lives of physicians, of about four and a half years in the twenty-five year period. This may be due in part to the easier life since the advent of the automobile and the telephone, to less hardship of untimely hours, more comfortable ways of living, and to better hospital and nursing facilities, but I cannot help thinking it is in part due to better care on the part of physicians of their own health and vigor. If we have any secret, let us impart it for the benefit of our patients.

I have referred to sound advice given by physicians to their patients to the end that they live sensible and normal lives, reducing the strain on vital organs, and maintaining that normal functional activity of body and mind that plays so important a part in postponing the advent of old age. Rusting out is always more disastrous than wearing out.

Besides regulating the physical well-being of our patients we have an unusual opportunity so to influence their minds as to assist every healing process. Besides suffering pain, we find them dismayed, discouraged, worried about their affairs and perhaps harboring a fear of the presence of some imaginary disease. The doctor's presence should be a soothing, steadying influence, leading his patients from gloom and pessimism into more wholesome realms of thought, where they can have larger and saner views of life. Family troubles may admit of no immediate cure, but the patient can often be led to rise above them and to appreciate a few kindly words of the philosophy of life. The doctor should be a sympathetic optimist.

An important vital principle is the possession of a distinct purpose in life, which really serves as a driving force. We are fortunate when the patient gives us this valuable aid and the consequent "will to get well". Many patients fail to have it and simply drift with the current. Even with these, something can be done to divert and interest them. I do not wish to imply that it is easy to make persons over, but I know that the highest gratitude has been received by physicians in the capacity of "guide, philosopher and friend". This quality is not easy to attain. It requires us to individualize our patients, to visualize their daily experiences, and to see that they get the best things out of life. It is not akin to mass production or even to the organization of large hospitals, necessary as they are. It is not an easy attainment for the specialist. It is, however, easily within the province of the general practitioner or family physician. He has the intimate personal touch and will find that it reacts on his own life in a beneficent way. It is within our power to reduce the number of disheartened and discour-

aged people who, unassisted, may go down to untimely graves. Such services, tactfully rendered, will conduce to longer and happier lives for our patients.

In conclusion, let us make use of every valuable discovery and remedy for the benefit of our patients, thereby aiding the advance of public and individual hygiene. Also, let us aid our patients in matters of mental distress and secure as allies, calm, courageous and hopeful states of mind. Thus can we hope to prolong the average lifetime of the human race.

PHENOL TEST FOR URINARY ALBUMIN*

BY WILLIAM B. CLAPP,† AND BENJAMIN COHEN†

OF the reagents used in testing urine for albumin, the following is a partial list[1, 2, 3, 4, 5, 6]: di-nitro-salicylic acid, sodium nitro prusside, saccharin, picric acid, concentrated phenol and glycerine, salicyl-sulphonic acid, sodium-tungstate, trichloracetic acid, acidulated brine, heat and acetic acid, phenic acetic acid, nitric acid; combinations such as sulphosalicylic acid and sodium sulphate, nitric acid and magnesium sulphate, and various combinations with mercuric chloride. Many of these reagents are not used today because they have failed to supply the requirements of delicacy, dependability, and economy.

The nitric acid ring test as commonly used is delicate. Carstairs Douglas[7] has determined that .0033% of albumin is sufficient to produce a white ring within 2-3 minutes. The disadvantages of nitric acid are[6]: its tendency to leave yellow stains on the fingers of the user, corrosiveness, suffocating odor, dangers attending transportation, and especially the presence and instability of color rings[8], which make it difficult to read a negative result. Color rings[8] form initially at the same level as the white ring of albumin, that is, between the nitric acid and the urine. The more common color rings are the following: urates (presenting a hue varying between a red to deep cherry), bile (a play of colors), normal urinary pigments (pink to dull red). The composite effect of an albumin ring with these secondary color rings is sometimes confusing.

A solution of carbolic acid (phenol), properly prepared, will prove very satisfactory for the qualitative determination of serum albumin. It is highly economical, safe to transport, sensitive to .004% albumin upon immediate inspection, does not register colored rings and has the advantage of indicating negative readings distinctly. Phenol-albumin rings become more distinct on standing, by gradual diffusion downward; whereas nitric acid rings become harder to read because of the dissemination of pigment rings.

The most satisfactory solution of phenol is prepared by the Pandy method[9]: 100 grams of liquid phenol are diluted with distilled water up to a liter and thoroughly shaken in a flask. Complete solution is not possible because phenol in the cold requires a 1 to 15 dilution with water.

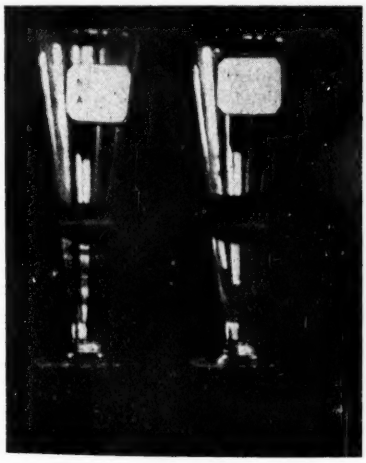

FIG. 1. The conical glass on the left shows the ring obtained with nitric acid in the presence of albumin; while that on the right shows the action of the modified Pandy solution. It is apparent that the rings are equal in size. Several color rings were obtained with the nitric acid; the phenol ring, however, was clear white.

FIG. 2. The same specimens as in Fig. 1, photographed several hours later. The phenol ring, on the right, has spread downwards, appearing as an intense white. The nitric acid ring has so intermingled with pigment as to make a reading difficult.

The solution is placed in an incubator or in a water bath and warmed at 35-45 degrees for a few hours to increase solubility. The flask is then removed and allowed to stand at room temperature. The excess phenol settles at the bottom, leaving a clear supernatant solution, which

*From the Laboratory of the Grafton State Hospital.
†Clapp—Medical student, University of Vermont. Cohen—Student at Tufts College Medical School. For records and addresses of authors see "This Week's Issue", page 1260.

is then removed. The resultant specific gravity is 1.008. To remove the problem of relative specific gravity, and to increase the stability of the rings obtained, shake one part of glycerine with seven parts of the Pandy solution. The final specific gravity is 1.045.

The test of albumin may be carried out in the same way as Heller's nitric acid test, that is, by *slowly* pipetting urine down the side of a test tube containing 3-5 cc. of reagent.

Results are easily read. In the presence of serum albumin a distinct white ring forms between urine and reagent. Urines that are negative show merely the faint, colorless line of separation between the two fluids. Urines containing more than .004% of albumin develop an immediate ring; urines containing between .002% to .004% demonstrate their rings only after standing a few hours. Results are best read against a black background. Although not necessary, the best results are obtained with clear or clarified urines.

The reliability of the modified Pandy solution as a test for serum albumin was experimentally demonstrated as follows: A solution of the white of an egg in albumin-free urine was made. The white of an egg[10] is said to be pure protein and is composed mainly of albumin and a slight amount of carbohydrate. The proteid-urine was treated with an excess of saturated neutral ammonium sulphate and filtered to remove the globulin which might be present. The filtrate did not cloud with the addition of further ammonium sulphate, thereby establishing the assumption that globulin was absent. The filtrate produced a strong white ring with both concentrated nitric acid and modified Pandy solutions.

For purposes of comparison, an excess of Esbach's reagent was added to 10 cc. of albumenized urine and centrifuged at high speed. The overlying fluid proved negative with both nitric acid and modified Pandy reagent. The same experiment was repeated with acetic acid and heat and the filtrate proved negative to nitric acid and phenol. Experimental use of modified Pandy solution in non-albuminous urines, high in oxalates, uric acid, phosphates, and urates clearly demonstrates the absence of a reaction in negative urines.

F. C. Fuhs[2] has suggested the use of equal parts of glycerine and phenol as the reagent, to be mixed with an equal part of urine and agitated thoroughly. The positive reaction for serum albumin is a white turbidity. According to the author, the glycerine is added to prevent a permanent emulsion between the carbolic acid and the watery elements of the urine. The sensitivity is to .1% albumin. This is satisfactory as a rapid test for albumin; but it must not be used as a ring test since false rings are obtainable. In comparison, modified Pandy solution is one-seventh as cheap to use, less dangerous to handle, more dependable in the reading of negative tests, and instantly sensitive to .004% albumin.

SUMMARY

Prepare Pandy reagent:

Phenol	100 gm.
Aq. Dest. Ad.	1000 cc.

Warm at 35-45 degrees C for 1-2 hours. Set aside until clear.

Prepare Modified Pandy reagent:

Clear Pandy solution	7 parts
Glycerine	1 part

Shake.

Test urine as in Heller's ring test.

Read results as a clear white ring in albuminous urines.

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FILTERED ROENTGEN RAYS IN THE TREATMENT OF KELOID*

BY CORNELIUS V. KILBANE, M.D.†

FOR a period of five years a standard method of treating keloids has been in use in the Roentgenological Department of the Massachusetts General Hospital. Reviewing the results of the series, we think that we have established a dosage which can be used with safety and which accomplishes satisfactory results. The amount of irradiation given in each treatment varied but little irrespective of size and location. The older and larger keloids received a greater number of treatments over a greater length of time.

A keloid is described as an overgrowth of hyaline connective tissue, developing in the

*Roentgenological Department of the Massachusetts General Hospital, Boston, Massachusetts.

†Kilbane—Specializing in Roentgenology. For record and address of author see "This Week's Issue", page 1260.

skin of predisposed subjects, following trauma or scarring. The characteristic structure is the anastomosing strands of thick hyaline collagenous matrix, between which lie well nourished fibroblasts. They occur as raised, irregular, broad, flat, elevated tumors. The shiny atrophic epidermis on the surface is separated from the tumor proper by a thin layer of cutis. Metastases are not known to occur; secondary changes are generally those of increasing hyalinosis.

There is no common site for the occurrence of keloids. The growths appear on the skin surfaces which are exposed to trauma but also on the covered surfaces of the body. Keloids are also described as spontaneous, having no definite history of trauma, and frequently form at the site of an acne or a lupus vulgaris lesion. The tumor is a rare growth of the mucous membrane, but MacKee[3], as well as Wickham and Degrais[4], report treating such a lesion on the mucous surface of the lower lip.

Most authors state that keloids occur more often in negroes than whites; as the colored population of New England is small, only a few were seen in our series of fifty-three cases. Many nationalities were treated, however, and we were unable to find any evidence of a definite predisposition to keloidal formation in any one. Neither age nor sex was shown any preference, nor were either light, ruddy, or dark-skinned subjects. The causative agents, as abrasions, lacerations and burns, showed no definite increase in any group. Daland[5] has published a series of cases in which he discusses the age of patient, and duration of keloid, sex, color, type of skin, and causative agents. Our results agree with his, that predisposition in the individual is the prime factor in the formation of keloids following trauma.

The literature describes many forms of treatment for the arrest and cure of keloids. Ahlswede[6], hoping to digest the collagenous tissue, used pepsin-hydrochloric acid; his results were never published. Smyth[7], reports cure of a keloid located in the ear with an injection of formalin. Lesieur[10] claimed to have arrested the growth and caused a bleaching of the keloid by the injection of oil of creosote and olive oil. The galvanic current and carbon dioxide snow have been, and are, agents used with good results in selected cases. The Finsen ray has gained some prominence as a therapeutic measure[11]. Surgery, to date, has been the cause of larger recurrences and should not be used.

Ullman[12] was perhaps the first to note the beneficial effects of Roentgen rays upon hypertrophic scar tissue. Since then the methods of applying irradiation have improved in proportion to the advance of the x-ray tube and apparatus. The use of radium in treating keloidal tissue was first instituted by Williams[13]. The present day finds many staunch advocates of radium and Roentgen ray therapy for keloids. A summary of the results of both methods is equally satisfactory. There are, however, some lesions that do not respond to either form of treatment.

Wickham and Degrais[4] advocate the use of radium. Daland's[5] published series, in which radium was used exclusively, shows very satisfactory cures. Taft[15] prefers radium to x-ray. Knox[14] and MacKee[3], after treating many cases, state that Roentgen rays have accomplished just as good a result as radium. Knox has frequently treated keloidal tissue with radium and at the same time cross-fired with x-rays. Pfahler[16] recommends treating the very resistant type of keloid with a preoperative and postoperative series of Roentgen rays, in this way decreasing the number of treatments and saving time. Prophylactic postoperative irradiation in subjects showing keloidal tendency is recommended. Grier[17] has recently published a series in which unfiltered Roentgen rays were used, and prefers the results to those in which a filter was employed. Whether x-ray or radium is used is dependent upon such factors as supply, apparatus, time, number of cases to be treated, etc., rather than upon any special advantage of either form of irradiation. It is important to establish a consistent standard method of treatment and to make frequent observations. A member of the Dermatological Department has coöperated with us in this work. The observations have been made by both departments and agreement as to the result obtained was decided before continuing treatments or discharging the case.

Classification of results were dependent upon the following conditions: relief of pain; softening; paling; amount of regression; and the cosmetic result. The terms "excellent", "good", or "definitely improved" were used to list the amount and degree of the above mentioned conditions.

The following is a tabulation of the number of cases referred to the X-ray Department for therapy of keloid, showing the disposition of the cases:

TABLE NO. 1

Number of cases examined	79
X-ray treatments advised	75
X-ray treatment advised and given	53
One treatment given—patient did not return	10
X-ray treatment advised but not given	12
X-ray treatment not advised	4

The following is the technique used in this series: 5 milliamperes, 6″ spark gap—98 k. v., 12″ distance, filter 1 mm. aluminum, the skin unit dose in seconds equal—336 seconds.

Table No. 2 represents the grouping and number of treatments to accomplish final disposition.

Early developing keloids are responsive to either x-ray or radium therapy and frequently are arrested and cured in two to four treatments. The slow evolving keloids are generally those that eventually become the resistant ones, and

require numerous radiation treatments; it is in this particular type of keloid that one is most likely to get disagreeable sequelae.

Coöperation on the part of the patient is an important factor in accomplishing satisfactory results. Many patients in our series would have fared better had they been punctual in their appointments. It is true that continued treatment at proper intervals means much in the end results. We have tried to maintain an interval of four to five weeks between each treatment. Having a definite interval between treatments, observations are more frequent and the result of irradiation is better judged.

Many cases of the series have been observed over a considerable period of time, and no untoward sequelae have been noted. Some are still under observation, and a few are still receiving treatment.

Table No. 3 shows the end results in the cases treated.

TABLE NO. 3

(a) Excellent—complete regression, softening, paling and good cosmetic result—33 of 53 cases.

(b) Good results—relief of pain, softening, paling, and a moderate amount of regression—11 of 53 cases.

(c) Improved—relief of pain, softening, slight paling and slight amount of regression—3 of 53 cases.

(d) Poor—relief of pain and slight softening—6 of 53 cases.

Every case showed some benefit, being relieved of pain and the feeling of tension. We have had no unsatisfactory end results or sequelae to date.

CONCLUSIONS

(1) Probably all keloids can be destroyed by Roentgen ray if treated sufficiently and properly.

(2) Filtered radiation is preferable to unfiltered as a standard treatment, as undesirable sequelae are less likely to occur.

(3) The dosage should be just below the skin unit dose and given at intervals of four or five weeks.

(4) Repeated small doses are better than a single large one except in early small keloids.

TABLE NO. 2

EXCELLENT RESULTS IN 33 OF THE 53 CASES

	Had only one treatment	1 case	9/10 s. u. per treatment
	Had 3 to 4 treatments	10 cases	9/10 s. u. per treatment
(a)	Had 5 to 6 treatments	7 cases	9/10 s. u. per treatment
	Had 7 to 9 treatments	10 cases	9/10 s. u. per treatment
	Had 10 to 13 treatments	5 cases	9/10 s. u. per treatment

(Treatment given every 4 to 5 weeks)

GOOD RESULTS IN 11 OF THE 53 CASES

	Had 2 treatments	1 case	9/10 s. u. per treatment
(b)	Had 3 to 4 treatments	4 cases	9/10 s. u. per treatment
	Had 5 to 6 treatments	5 cases	9/10 s. u. per treatment
	Had 7 to 8 treatments	2 cases	9/10 s. u. per treatment

(Treatment given every 4 weeks)

IMPROVED: 3 OF THE 53 CASES

	Had 3 treatments	1 case	1 s. u. per treatment

(Treatment given every 4 weeks)

(c)	Had 6 treatments	1 case	9/10 s. u. per treatment

(Treatment given every 6 weeks)

	Had 11 treatments	1 case	1 s. u. per treatment

(Treatment given every 6 weeks)

POOR RESULTS IN 6 OF THE 53 CASES

	Had 3 treatments	2 cases	9/10 s. u. every 5 weeks
	Had 4 treatments	1 case	8/10 s. u. every 7 weeks
(d)	Had 7 treatments	1 case	8/10 s. u. every 6 weeks
	Had 9 treatments	1 case	8/10 s. u. every 7 weeks
	Had 12 treatments	1 case	8/10 s. u. every 4 weeks

In Group (b) five cases show insufficient number of treatments.
In Group (c) one case has not had sufficient treatment.
In Group (d) four cases should have more treatment.

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THE OTO-RHINO-LARYNGOLOGICAL SERVICES OF THE MASSACHUSETTS EYE AND EAR INFIRMARY

Report of Regular Clinical Meetings, September 10 to September 24, 1930

EDITED BY DR. PHILIP E. MELTZER

FOUR CASES OF FOREIGN BODY REPORTED BY DR. F. L. WEILLE

OVER a week-end four foreign body cases came into the Eye and Ear Infirmary. The first case was a penny at the cricoid, in for a day, the second a quarter at the cricoid, in for three days, both in young children. The third was a campaign button in an eleven-year-old child and the fourth was a thumbtack in an adult. The Tucker forceps was used through a 9 mm. bronchoscope in the removal of the coins. The campaign button was easily and quickly removed. The tack went on into the stomach.

Remarks: Dr. H. P. Mosher.

The main point in taking out foreign bodies is to use the instrument that will fit the foreign body. The esophagus in children is much larger than you think it is when you once get below the cricoid.

STRICTURE OF THE ESOPHAGUS REPORTED BY DR. D. C. SMYTH

A woman of sixty years was readmitted for further dilatation of a stricture of the esophagus. In May, 1929, because of increasing difficulty in swallowing, an esophagoscopy was done and the lumen was found to be divided into two parts by a web, one opening anteriorly and one posteriorly. She was dilated with bougies up to number 36 and was well for six months. In November, 1929, she was again dilated, this time up to number 39 and has been well since, up to this week. She now has a definite difficulty in swallowing and marked anemia. The hemoglobin is 45% though the red count is 4,238,000.

Remarks: Dr. A. S. MacMillan, Roentgenologist.

The film shows a concentric narrowing of the esophagus just below the cricoid. This is consistent with the picture we get in fibrosis of the upper end of the esophagus and it accounts for 20% of all cases of dysphagia we have seen here in the last four years, in over seven hundred cases.

Discussion:

DR. E. W. HERMAN: There are two points to be considered: (1) Has she periesophageal carcinoma? (2) This patient has been well for a year since her last dilatation; she now has anemia and so far as we know a benign stricture; how and in what way are the two associated?

DR. D. C. SMYTH: I would recommend that thorough investigation for bleeding be instituted to account for the anemia.

DR. H. P. MOSHER: As to the question of carcinoma, it cannot be ruled out in a patient of this age. Stricture of the upper end of the esophagus and webs have been found here and they are fairly common in this clinic. It has come out lately that some webs are due to periesophageal infection. This has been substantiated by Dr. MacMillan and Dr. Smyth. Years ago they were all diagnosed as carcinoma, although some of them were found to be still webs.

DR. BOIES: This syndrome is a benign obstruction of the upper end of the esophagus occurring chiefly in late middle-aged women, associated with glossitis and atrophy of the mucous membranes of the mouth, pharynx and esophagus, with secondary anemia. About 150 cases have been described. It was first described in 1922 at the Mayo Clinic by Plummer and Vinson. A recent author has suggested that an anemia and glossitis and atrophy of the mucous membranes result in loss of flexibility of the esophagus, often with scarring and web formation of the upper end. However, it is possible that the anemia is secondary to the stricture and malnutrition. This patient had a posterior gastro-enterostomy twenty-two years ago, which may account for the anemia by depriving the body of normal gastric digestion. The atrophy of the tongue and pharynx occurring with the anemia led to web formation.

Final report:

This case was esophagoscoped and no malignancy found. Because of the anemia and the tarry stools she was transferred to the M. G. H.

Medical Service where a tentative diagnosis of pernicious anemia was made. The final diagnosis was Plummer-Vinson's Syndrome.

DEEP ABSCESS IN THE NECK WITH PHLEGMON REPORTED BY DR. E. W. HERMAN

This is a case of abscess in the neck in a young man following a tonsillitis. There was marked edema with dysphagia but no dyspnoea. Hot packs were applied for 24 hours. He was operated upon, a submaxillary incision being made which exposed the gland very nicely; it was elevated and the pus evacuated. A pocket extended up behind the angle of the mandible and the spine could be felt for considerable distance below. Two cigarette wicks were placed in the cavity.

Remarks: Dr. H. P. Mosher.

I am pleased that Dr. Herman followed my suggestion as to the method of evacuation of pus in this region. It seems to me that this is the best approach (the space is the spheno-maxillary fossa), and tends to substantiate the belief that the pus came originally from the tonsil.

CASE OF MASTOIDITIS WITH MENINGITIS REPORTED BY DR. F. L. WEILLE

A 39-year-old man came into the emergency ward over the week-end with an exacerbation of a chronic otitis media with mastoiditis, and probable meningitis. There was a question of brain abscess with labyrinthitis. The discharge from the ear lasted 36 hours following the acute exacerbation which started two weeks before with severe pain in the ear. He had had headache and vomiting for three days before admission. On admission, aside from the usual ear signs, he had a beginning stiff neck, left facial paralysis, and he had no hearing whatever in the left ear. The Weber test with tuning fork was to the right. He past-pointed to the left with the right hand about three inches. He had left lateral nystagmus and no Kernig. He was operated on the third day. A mastoid operation was done with exposure of about 15 mil. area of dura over the tegmen mastoideum. The cerebellum was not exposed. The sinus was exposed and was not remarkable. I felt that rather than a brain abscess he probably had a localized meningitis and if he had a brain abscess, we had done all we were going to do at the time; with the hearing very poor, with this type of nystagmus, there was a localized meningitis outside of the cerebellum. The patient's spinal fluid on admission was 2400 cells. The next day the cell count was 4000. There were no organisms in the spinal fluid at the time. Yesterday there were intracellular and extracellular gram positive and gram negative diplococci in the spinal fluid. This means there is something the matter with the culture. The organisms should be either all gram positive or all gram negative. The neurological department reported that there is definite evidence of meningitis with very definite suggestion of a brain abscess in the region of the cerebellar pontine angle. I think he is going to die no matter what you do with him. The fundi were negative. Fields were not done.

Discussion: Dr. Cahill.

In the presence of a dead labyrinth with a facial paralysis I believe the intracranial complication if present originated from the labyrinth. The nystagmus should be away from the diseased ear, and yet it is toward the affected ear. I think we should investigate further in the region of the cerebellar pontine angle. It is to be noted that the vomiting has ceased and the headache has disappeared since the operation. There are no evidences of incoördination of the extremities of the affected side.

Further reports of the case: Dr. Cahill.

The man was operated upon, the lateral sinus was found and blocked off. The entire labyrinth was removed from the region of the blocked sinus forward towards the apex. The saccus endolymphaticus was exposed and when opened frank pus exuded; its wall was necrotic and led to a cortical cerebellar abscess which was drained through the same incision. It was spherical in shape and had a moderately firm capsule wall. In reconsideration of the case the fact that he had nystagmus to the affected side and only past-pointed with one hand to the left were signs which pointed definitely to cerebellar abscess. I think I would have gone into the cerebellum at the time of the first operation though one can certainly justify the procedure as we did it.

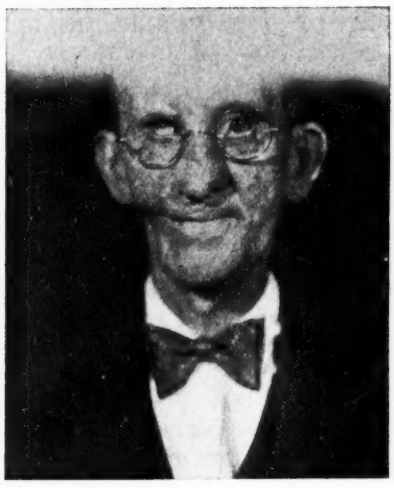
Later notes:

This patient died and at autopsy a spherical abscess was found in the region of the cerebellar pontine angle. The region of the labyrinth was bathed in pus and there was a marked basilar meningitis evidently secondary to the brain abscess as there were no organisms or temperature to indicate meningitis on the date of admission. Cells in the spinal fluid with other signs of meningitis were probably due to a localized rather than to a generalized meningitis.

CASE SHOWING END RESULT OF RESTORATION OF THE UPPER JAW AND FACE REPORTED BY DR. V. H. KAZANJIAN

This patient had been here before. Prior to operations for the repair of the face and nose examination showed the following conditions: The greater part of the nose on the right side and the upper lip were missing as shown by the plastic face mask. A considerable amount of the upper jaw on the right side was also missing. The patient was edentulous. There was a deformity of the lower jaw due to old osteomye-

litis. The first operation was done almost a year ago for the repair of the upper lip, under local anesthesia. Immediately after the operation, a temporary upper denture was inserted into the mouth in order to give support and fullness to the newly made upper lip. For the repair of the nose an attempt was made first to utilize the nasal septum but that failed. The nose, however, was repaired successfully by using a forehead flap.



After repeated operations, most of them rather minor, both the nose and lip were brought to this condition. I would like to have you see the dental plate. The first denture was a temporary one. The second one was designed along other lines. This last one is more simple and more durable in its construction. You notice we have enough hard palate left to give a base for the denture.

CASE OF CHRONIC FRONTAL SINUSITIS REPORTED BY DR. CARL ERNLUND

The patient is a boy 20 years of age. Up to four weeks ago he had no nasal symptoms whatsoever. He then began to have foul left-sided nasal discharge, a week later daily recurrent headaches coming on in the morning and lasting a few hours. Two weeks ago, that is two weeks after the onset of symptoms, swelling developed over the left side of the forehead. He was admitted to the hospital and the anterior end of the left middle turbinate was removed. This was followed by relief of headache but the swelling increased in size. Temperature was normal. Five days ago, at the suggestion of Dr. Herman, I made an incision in the highest portion of the swelling and found the bone to be partly necrotic. It was bluish but there was no lead into the frontal sinus. This bone was removed and the mucous membrane of the sinus was found to be destroyed practically throughout. There was no macroscopical evidence of osteomyelitis. I did a Bárány frontal sinus operation which is really a Lynch operation plus a plastic wherein the mucous membrane is replaced along the floor of the frontal sinus and the mucous membrane is held in by pressure against the soft tissue. The sinus is drained through the incision over the

brow. Dr. Ernlund remarked that Bárány has had 100 cases, the oldest about 14 months. All of these cases have done well.

CASE OF CYST OF THE ANTRUM REPORTED DR. ROBERT L. GOODALE

This is a girl 21 years of age who three weeks ago had a sore gum in the upper right jaw. Following that she had a marked swelling in the cheek with slight tenderness. By the time of admission this swelling had subsided considerably. There were no nasal symptoms or signs. The x-ray showed a defect in the anterior wall of the right antrum, where there was an absence of bony tissue. A radical antrum operation was done and a large cyst was uncovered which had eroded the wall of the antrum and completely filled the cavity of the sinus. It was filled with a watery fluid, yellowish-green in color with many crystals. These crystals were examined later and apparently were not cholesterin. The cyst seems to be attached to the root of one of the molar teeth on that side. X-ray showed it to be the first molar which had some time previous been extracted, with root remaining.

Convalescence followed.

DEMONSTRATION OF TISSUE FROM THE PATHOLOGICAL LABORATORY BY DR. H. P. MOSHER AND DR. W. E. MURPHY

Slide 1. Demonstration of movements of ciliated cells from the mucous membrane of tissue from the antrum and from polypi. The technique of Dr. Sabin of the Johns Hopkins University was followed. These tissues were beautifully demonstrated and it was remarkable to note the action of the cilia in specimens examined. After many hours the cilia were still actively motile. Compared with the fixed stain the size of the cells was about one to three and there was a continual bombardment of the granules within the cell.

Slide 2 was tissue from the basal cell carcinoma, in a man 72 years of age. He had two wart-like growths in his cheek which 45 years later began to enlarge. The section showed typical basal cell carcinoma with areas of degeneration. The cells showed a typical oval or spindle shaped appearance.

Slide 3 was another case of basal cell carcinoma unusually rapidly growing for that type of tumor, taken from the eyelid. Quite a number of mitotic figures could be seen in the section, well differentiated.

ANNUAL REPORT OF THE PUBLIC HEALTH SERVICE SUBMITTED TO CONGRESS

The annual report covering the work of the United States Public Health Service during the past fiscal year has just been submitted to Congress by Surgeon General H. S. Cumming.

The prevention of the introduction and spread of infectious diseases from foreign countries into the United States is one of the important public health duties of the Federal Government. The close relation of commerce in connection with the spread of epidemic diseases has been known since ancient times. In order properly to protect the United States against the introduction of infectious diseases, especially in view of the widespread general interest awakened by the rapid increase of international aerial transportation, it is necessary to keep advised currently as to the prevalence of disease, not only in the United States but, in so far as practicable, throughout the world.

Cholera is of more frequent occurrence in Asiatic ports than bubonic plague, according to available information, it being present in 1929 in 32 Asiatic ports while plague cases were reported in only 18 ports. A considerable epidemic of cholera occurred in the early Spring of 1930 in the central provinces of India, but the situation elsewhere in India was relatively favorable. Cholera was reported in the Philippine Islands in May, 1930, but later epidemics have not assumed the devastating proportions which formerly characterized the disease there.

In recent years the situation relative to bubonic plague has improved in most parts of the world. During the past fiscal year however, plague appeared in certain African centers near Mediterranean trade routes. In northern India, which has hitherto furnished more cases than the remainder of the world combined, there has been almost constant improvement since 1924.

Yellow fever was reported from the west coast of Africa and also from Brazil and Colombia during the year.

Reports for the past fiscal year indicate good health conditions generally throughout the United States, except for the increased prevalence in certain diseases. For the past five years there has been a steady increase in the number of cases of meningococcus meningitis. In the Spring of 1930 the number of cases dropped below the figures for the preceding year. This decrease in cases reported continued.

The prevalence of pellagra has been increasing for several years. In 1924 the pellagra death rate computed from reports was 2.5 per 100,000 population. The rate rose steadily until 1928 when it was 5.7 per 100,000 population (based on reports from 45 states). For the calendar year 1929 the pellagra death rate was 5.5 per 100,000 population.

During the calendar year 1929 the incidence of infantile paralysis was lower than it had been since 1926, but just before the close of the fiscal year there was a marked increase in the number of cases in certain States. By the end of June, 1930, reports showing more than the usual prevalence of infantile paralysis were being received from communities in widely separated parts of the country. This disease normally reaches its greatest in-

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MEDICAL PROGRESS

PROGRESS IN TUBERCULOSIS

BY JOHN B. HAWES, 2ND, M.D.,* AND MOSES J. STONE, M.D.*

PATHOLOGY

G. B. WEBB (*J. A. M. A.* 91:769-772, Sept. 15, 1928), studying the spread of tuberculosis in the body, concludes that its dissemination is not always by contiguous extension. He feels that it is reasonable to assume that tuberculosis enteritis and laryngitis have a hematogenous origin, at least in many cases.

E. M. Ellison (*M. J. & Rec.* 128:437-440, Nov. 7, 1928) urges the correlation of clinical, laboratory and roentgenological data as the best method for determining activity. This, he believes, should be carried out by means of a reasonable period of observation, about one month in a sanatorium. He is of the opinion that activity is proved by the general rather than the local symptoms, and that chances of reactivation may continue long after clinical activity has ceased.

G. Wiele (*Beitr. z. Klin. d. Tuberk.* 68:296-305, 1928) has assembled a large series of cases of spontaneous pneumothorax. He feels that although the chief cause is tuberculosis, there is a considerable number of cases in which no relation to tuberculosis is determinable even after years of observation. He believes that in such cases, interstitial emphysema plays an important rôle. He presents a case of complete spontaneous pneumothorax, which has existed over a period of 20 years. This patient served in the World War and is working regularly today. He points out that the prognosis need not be unfavorable in these cases.

E. G. Stoloff (*Am. J. M. Sc.* 176:657-664, Nov. 1928) discusses the non-tuberculous cases of spontaneous pneumothorax. Pneumothorax may be caused by: (1) degeneration in the lung (abscess, gangrene, bronchiectasis, infarction, emphysema; or (2) rupture of the lung due to congenital defect, emphysema or foreign body. He describes three of his own cases of spontaneous pneumothorax, which were all postpneumonic and uncomplicated, and which made uneventful recoveries.

Vladimir Mikulowski (*Amer. Rev. Tuberc.* 21:686-690, May 1930) confirms the previous findings of other authors concerning the presence of tubercle bacilli in the faeces in cases of "closed" lymphatic tuberculosis. He believes that the presence of the bacilli in the bile is a result of a more or less intense bacillaemia, which may be present in cases of lymphatic and osseous tuberculosis.

G. B. Price (*Tubercle* 11:97-108, Dec. 1929) believes that gassing bears a relatively unimportant relation to the after-incidence of phthisis. He found that only 0.5% of all patients who received gun-shot wounds in the chest developed pulmonary tuberculosis. Surface injuries not involving the thoracic cage and contents appeared to be of relatively small importance in connection with the after-occurrence of pulmonary tuberculosis. When, however, the pulmonary tissue has been definitely injured, and especially when a foreign body is retained in or near the damaged area, then reactivation of tubercle may occur in the organ affected, even after an indefinite period. (In this country it has been clearly demonstrated that an injury to the chest wall, whether or not involving fracture of ribs, often leads to hemorrhage and the reactivation of a hitherto quiescent tuberculous process.—J. B. H.—M J. S.)

M. Jacob (*M. J. & Rec.* 129:32-35, Jan. 2, 1929) finds that lower lobe pulmonary tuberculosis without apical involvement is a rare condition. When it does occur, the clinical course and the pathological and x-ray findings are analogous to those of the juvenile type of the disease. He recommends artificial pneumothorax as the treatment "par excellence" in these cases, provided it is instituted early. (We would not agree as to the rarity of such basal involvement. —J. B. H.—M. J. S.)

DIAGNOSIS

Ada Chree Reid (*American Rev. Tuberc.* 20:46-51, July 1929) urges routine fluoroscopic examination as an adjunct to routine physical examination. She found that minimal tuberculosis as well as more advanced lesions are visible with the fluoroscope frequently when physical signs may be entirely absent. (And also when an x-ray film shows nothing. J. B. H.—M. J. S.)

H. K. Dunham (*Radiology*, 10:217-221, March 1928) advises serial x-ray plates in the treatment of tuberculosis. He feels that it is within the scope of the roentgenologist to report on the prognosis of the case. The roentgenologist should determine in serial plates the type of lesion, whether the process is spreading locally or in new parts of the lung, whether foci are breaking down with the formation of a cavity, whether they are becoming more or less dense, whether the exudate is being absorbed or has disappeared, and whether scar tissue contraction or walling off is taking place. He concludes that depending upon these factors, exercise and rest and general management can be more intelli-

*Hawes—President, Boston Tuberculosis Association. Stone—Visiting Physician, Massachusetts Memorial Hospitals. For records and addresses of authors see "This Week's Issue", page 1260.

gently looked after. (An excellent idea when finances permit.—J. B. H.—M. J. S.)

S. V. Pearson (*Lancet*, 1:59-60, Jan. 12, 1929) feels that, if the profession is going to continue to place reliance on physical signs and x-rays as a means of diagnosis, countless tragedies will continue to happen. He points out that the important thing to recognize is that the disease is producing ill health; this must be diagnosed from the history and symptoms, especially such symptoms as cough, fever, pain, and lassitude. He emphasizes the importance of repeated sputum examinations in suspected cases.

H. Deist (*Klin. Wchnschr.* 8:314-318, Feb. 12, 1929) states that, according to the statistics on necropsies, it may be assumed that in 0.3% to 0.5% of syphilitic patients, lesions of pulmonary syphilis are found. The clinical course in such cases is not characteristic and may closely resemble pulmonary tuberculosis. He found that the tendency to shrinking, emphysema and retraction is pronounced. Circulatory embarrassment and maximal cyanosis may develop. He finds that the diagnosis is difficult and there is no one symptom or sign under which the diagnosis can be made. The coincidence of the absence of tubercle bacilli, or positive serological test, and cirrhotic changes in the lung is highly suggestive. He feels that in many cases the diagnosis can only be established by the result of specific therapy, which usually brings prompt relief, although the roentgenological appearance may not change considerably. He warns, however, to be very careful not to explain any and all pulmonary pathological changes, in the presence of a positive serological test, as caused by pulmonary syphilis.

J. E. K. Flannagan (*Amer. Rev. Tuberc.* 21:659-663, May 1930) feels that repeated examinations may be necessary to disclose râles that might not be present or heard at the time of a single or even several examinations. He found examinations in varying postures to be of doubtful value in bringing out râles that cannot be heard with the patient in the usual position. He reports one case where the administration of potassium iodide brought out moist râles which were not present before. (The question might well be raised as to how much it benefited the patient to give potassium iodide and produce râles which were not present before.—J. B. H.—M. J. S.)

H. A. Reisman (*Arch. Pediat.* 46:667-672, Nov. 1929) warns that in children sinusitis may both simulate and aggravate tuberculosis. Pulmonary infection secondary to a sinusitis may present a picture clinically and roentgenologically so similar as to be at times very easily confused with that of juvenile tuberculosis. Of course, a persistently negative tuberculin test is of the greatest value in ruling out tuberculous infection. (This article calls attention to a much neglected point.—J. B. H.—M. J. S.)

BLOOD STUDIES

E. M. Medlar (*Am. Rev. Tuberc.* 20:312-346, Sept. 1929), studying the blood pictures in tuberculosis, finds that there is no specific leucocytic reaction in tuberculosis. The leucocytes may indicate that something abnormal is happening within the body, but they cannot establish the diagnosis of any specific infection. Thus he found that the neutrophile plays the chief rôle in tuberculous abscess formation and in the extension of tuberculous ulcers; the mononuclear leucocyte is the chief cell in new tubercle formation, and the lymphocyte predominates when a tuberculous lesion is healing.

John W. Flinn and Robert S. Flynn (*Am. Rev. Tuberc.* 20:347-367, Sept. 1929) find that in *uncomplicated* cases of active pulmonary tuberculosis the leucocytic picture may, with a large degree of accuracy, be interpreted as follows:

(1) An increase in the monocyte lymphocyte ratio, i.e., a decrease in the monocytic percentage with a concurrent increase in the lymphocytic percentage, points very definitely to an improved pulmonary condition. The converse points in the opposite direction.

(2) An increase in the lymphocyte-neutrophile ratio, i.e., a decrease in the percentage of lymphocytes with a concurrent increase in the percentage of neutrophiles, points very definitely to more extensive pulmonary involvement. The converse points in the opposite direction.

They conclude that such blood studies are a distinct aid in the prognosis and treatment of pulmonary tuberculosis.

Benjamin L. Brock (*Am. Rev. Tuberc.* 21:745-763, June 1930), studying the differential leucocytic counts, finds that periodic studies of the white cells, i.e., the total as well as differential, give us a truer picture of the tuberculous condition than does the clinical course of the case. He notes that progressive tuberculous disease may frequently be present without the slightest evidence of any symptoms of clinical activity. He ascribes to the neutrophile the part of tuberculous abscess formation; to the lymphocyte the rôle in the healing of the lesion; and to the monocyte the chief rôle in new tubercle formation. Thus he concludes that a study of the leucocytes with especial reference to their ratio would be indicated as a routine in border-line cases, where there is no fever or rapid pulse. He suggests that its study would also be helpful as an index to beginning or increasing exercise in many doubtful cases. (This is distinctly the opinion of an enthusiast.—J. B. H.—M. J. S.)

Lucy L. Finner (*Am. Rev. Tuberc.* 21:764-785, June 1930), studying the monocyte count by the supravital stain, found an elevation of the monocyte count in 87% of patients studied. In general, she found the monocyte count elevated in accordance with the degree of active tuberculous involvement. She feels that the

blood changes in clinical tuberculosis are sufficiently definite to be of diagnostic and prognostic significance.

William H. Oatway, Jr. (*Am. Rev. Tuberc.* 21:786-810, June 1930), studying the differential blood counts on patients at the Trudeau Sanatorium, feels that in that method we have a most delicate and complete index as to how that individual is handling his tuberculous process. He interprets the blood findings as follows:

(1) With an excess of neutrophiles above normal, the septic picture is an indication of the most severe and dangerous process.

(2) An increase in monocytes in an otherwise normal count points to a type more favorable and more passive than the septic. It is one step toward the healing stage from the septic and is associated with an increased resistance.

(3) An increase of lymphocytes indicates a healing lesion, a case which is usually well clinically and inactive by roentgenograph. It is the successful result of the therapeutic process of rest or pneumothorax. He feels that prognosis can only be made on repeated specimens and that the curve thus obtained is valuable evidence of the progress of the lesion.

B. C. G.

S. A. Petroff (*Amer. Rev. Tuberc.* 20:275-296, Sept. 1929), studying the value and safety of B. C. G., finds that the tubercle bacillus is not stable and may *mutate*. Although B. C. G. is a microörganism of relatively low virulence, on the basis of present information we can never know what may happen with it *later in life* as it passes from human being to human being and perhaps gradually regains its former virulence. Believing, therefore, in the evolution and mutation of all microörganisms, he advises strongly against the adoption of any method of prophylactic immunization that uses a *living* microörganism. He concludes that if we must use a vaccine, then one composed of dead microörganisms can accomplish as much as we can obtain with B. C. G.

S. A. Petroff, A. Branch & F. B. Jennings, Jr. (*J. Immunol.* 16:233-257, March 1929), studying vaccination with dead tuberculous organisms, found the immunity produced by dead bacilli is in no way likely to differ from that produced by living bacilli. They, therefore, believe that the vaccine of heat-killed tubercle bacilli would be of practical use for the immunization of children. Heat-killed microörganisms would be harmless as a vaccine for the reason that they cannot grow, whereas attenuated microörganisms, once entering the body, may conceivably revert to their old pathogenicity.

A. Calmette (*Brit. J. Tuberc.* 22:161-165, Oct. 1928) reports that from July 1, 1924 up to July 1, 1928, 96,000 children have been vaccinated in France with B. C. G. and the method has rapidly spread to many foreign countries. He states that no one has reported pathological accidents attributed to the vaccination and everywhere satisfaction is expressed with the results. The mortality from tuberculosis among the vaccinated is nil, while among the non-vaccinated brought up in tuberculous surroundings it is always great. Calmette is convinced that B. C. G. can be used without the slightest fear of producing harm, and that it should be employed wherever it is possible to obtain vaccinal emulsions freshly and properly prepared.

Bessau, Czerny, Pfeiffer, v. Pirquet, Moro, and Selter (*Deutsche med. Wchnschr.* 54:1707; 1759; 1803; Oct. 12, 19, 26, 1928) warn that we should feel our way along very cautiously as regards experimentation with B. C. G. on children. They feel that the product should be used clinically only in very exactly defined situations and only after careful explanation to parents who should give their full consent. They question the advisability of mass inoculation at the present time and argue that science will gain more if careful attention be paid to individuals receiving the inoculation than to mass trials.

E. Nobel (*Wien. klin. Wchnschr.* 41:1621-1622, Nov. 22, 1928), quoting from a paper by Gerlach, says that in a number of animals B. C. G. inoculation produced extensive and progressive lesions. He reiterates his own findings of progressive and lethal tuberculosis produced by B. C. G. He points out that at the B. C. G. conference of the Health Committee of the League of Nations, the final resolution does not definitely state that the B. C. G. is harmless, but that it only takes cognizance of the evidence presented in favor of this view.

F. Gerlach (*Wien. klin. Wchnschr.* 41:1622-1623, Nov. 22, 1928), in answer to Nobel's criticism, states that the amounts of B. C. G. used for immunization and in its usual application are definitely harmless and that the experiments on cattle in Austria fully support this claim.

A. Calmette (*Zeitschr. f. Tuberk.* 50:38-44, 1928), states that the extensive tests with B. C. G. since 1921 indicate that the protective vaccination of newly born infants by the stomach route during the first ten days of life is harmless and that it confers a resistance to virulent intradomiciliary infection during the entire term of childhood. The method should be utilized wherever the freshly prepared and well controlled vaccine from qualified laboratories can be obtained.

E. Nobel (*Zeitschr. f. Tuberk.* 50:44-45, 1928) points out that the vaccine he used was viable and that the statistical methods used by Calmette were uncertain and unreliable.

H. Schlossman (*Deutsche med. Wchnschr.* 54:1871-1872, Nov. 9, 1928) accused Dr. Calmette of being theoretical and a dreamer, and of accepting loose statements and irregular data somewhat uncritically. He agrees, however, that it probably does confer some degree of immunization, but he warns that it should not excite too

great hopes for clinical application, despite the reports from the veterinarians.

G. L. Cox (*Tubercle* 10:497-525, Aug. 1929) analyzed the histories of young children under 5 years who lived in a house with consumptives. He found that the death-rate from non-pulmonary tuberculosis, mainly tuberculous meningitis, was greatly in excess of the rate from the same cause in the county of Lancashire, which served as the control. He feels that the calculation made by Calmette, that in France 24% of children of tuberculous mothers die from tuberculosis in the first year of life if kept with the mother, is many times higher than that found in his experience, which was only 3.2.

JUVENILE TUBERCULOSIS

John B. Hawes, 2nd (*Am. Rev. Tuberc.* 20:41-45, July 1929) discusses the rôle of the preventorium in the fight against tuberculosis. Studying 110 children discharged from the Prendergast Preventorium of Boston during the years 1922 to 1926, he concludes that the ultimate success of preventorium treatment depends upon thorough aggressive and prolonged follow-up work. He strongly advises against the return of a child to a home where it will again be exposed to infection. He urges that admission to the preventorium be limited to children of a good mentality, who have a definitely positive Pirquet test, and have been exposed to definite and real contact, and that detailed records of the child's social and medical history should be furnished the preventorium.

E. L. Opie, H. R. M. Landis, F. M. McPhedran and H. W. Hetherington (*Am. Rev. Tuberc.* 20:413-420, Oct. 1929), after making an exhaustive study of the incidence of tuberculous infection in school children, found that actual cases of pulmonary tuberculosis in children attending school is 0.5%. This was decided by roentgenological examination in association with symptoms and physical signs. Latent apical tuberculosis recognizable in roentgenological films is often the precursor of the adult type of pulmonary tuberculosis. This they found in 1% of adolescent children (of high school age), and it is more frequent in girls than in boys. They advise that children with such a lesion be kept under continuous observation and pursue a modified high school regimen to prevent further progress of the disease. They found latent tuberculous infiltration of the lung of childhood type to be in more than 1% of the children. They suggest that this lesion may be the precursor of grave disease and advise that these children be under observation and receive special care until it is evident that the lesion is no longer progressive. Tuberculous foci in the lungs and in tracheobronchial lymph nodes were found in more than 10% of the school children. This may be the precursor of pulmonary tuberculosis and its finding may be of significance. They found that adolescent girls showed signs of pulmonary tuberculosis twice as often as adolescent boys, and that they occurred four times as often in colored children of high school age. They feel fairly certain therefore that tuberculous infection may spread within schools.

H. W. Hetherington (*Am. Rev. Tuberc.* 20:511-531, Oct. 1929) finds that the usual methods of clinical examination are not of value in discovering children who will be benefited by open-air classes. He recommends that all school children known to be exposed to tuberculosis receive an intracutaneous tuberculin test in addition to the usual physical examination. Those who react should then have an x-ray examination and, if advanced infection is found, should be given special prophylactic care.

F. Maurice McPhedran (*Am. Rev. Tuberc.* 20:532-636, Oct. 1929) discusses the evolution of pulmonary tuberculosis in childhood. He concludes that the apparent sudden onset of acute tuberculosis of children is usually preceded by a period of development of a latent lesion over months or even years. He submits many histories and illustrations to show that the diagnosis of tuberculosis in children and its progress depend largely on the roentgenograph. He then makes a plea not to dismiss apical lesions in children as scars, unless they are composed wholly of calcium and dense strands. Several observations should be made in order to be sure that spread is not occurring. He warns that the rapid subsidence of symptoms does not represent the end of danger. Because of the suddenness of severe relapse common in adolescence, treatment should be prolonged till the lesions are demonstrably stable.

H. D. Chadwick & D. Zacks (*New Eng. J. Med.* 200:332-337, Feb. 1929) report that tuberculous infection is far from universal in Massachusetts. The increase from the ages 5 to 15 averaged only 1 point per year. At this rate they feel that the incidence of infection at 30 should be but 50%. Of course, the testing of a large group of adults would determine this. They feel that with the marked decrease in the number of infected persons, tuberculin tests become of diagnostic value in young adults as well as in children. They feel that a negative tuberculin test permits the exclusion of tuberculosis in many suspected persons.

J. B. Hawes, 2nd and E. Friedman (*J. A. M. A.* 92:609-610, Feb. 23, 1929) point out the great discrepancy that prevails in the interpretation of roentgenograms in cases of tracheobronchial tuberculosis. On account of this discrepancy of opinion they feel that no diagnosis of hilum tuberculosis should be made on roentgenographic evidence alone. They emphasize that the presence of enlarged tracheobronchial lymph nodes, in the absence of clinical symptoms, does not necessarily mean either active or inactive hilum tuberculosis. Calcification of the nodes indicates a healing or a healed

process, and in the absence of clinical signs and symptoms institutional treatment is not needed. They conclude that the chief requirements for selection of children for preventoriums should be a history of definite and prolonged contact and positive Pirquet reaction, special attention being given to those poorly nourished and underweight, of course.

H. D. Chadwick (*New Eng. J. Med.* 200:1154-1155, May 30, 1929), reviewing his experience with the ten-year program in Massachusetts, finds that infection with the tubercle bacillus is not so common as has been thought. At the age of 5, the beginning of school life, 20% are infected, at ten, 28%, at fifteen, 35%. His figure for adults is only 50% infection, a lower figure than was supposed. He, therefore, urges the use of the tuberculin test for diagnostic purposes in adults as well as in children. By the use of the tuberculin test he found also that only about 1/3 of the diseased cervical lymph nodes are tuberculous. (We doubt the accuracy of a diagnosis based on this alone.—J. B. H.—M. J. S.)

TREATMENT

A. Rollier (*Brit. J. Tuberc.* 22:101-112. July 1928) reports the establishment of a work colony in Leysin in connection with the facilities for heliotherapy. He found that patients who pursue a methodical course of manual work soon become conscious of a progressive recovery of strength, and that such daily tasks have an undeniable beneficial effect, morally and mentally.

H. U. Ritschel (*Beitr. z. Klin. d. Tuberk.* 68:394-398, 1928) finds that the results obtained by the use of the Gerson diet in tuberculosis is within the limits of the usual benefits secured with the ordinary diets. He finds no reason to discontinue the usual dietetic treatment.

F. Newmann (*Med. Digest & Rec.* 127:601, June 6, 1928), reviewing his results with artificial pneumothorax, considers this treatment the greatest achievement in the management of pulmonary tuberculosis since the advent of the rest cure, and that the results in carefully selected cases are gratifying and warrant its more extensive use. He found that in many cases, together with rest, it brings about an arrest of active and progressive disease; in other cases, it prolongs life, alleviates symptoms and often stimulates the patient's morale.

E. Bridge & P. A. Bly (*Am. Rev. of Tuberc.* 20:685-691, Nov. 1929) urge phrenico-exairesis in those unilateral cases of pulmonary tuberculosis which have not made satisfactory progress under sanatorium regimen. They find it useful in bilateral cases where there is a more or less limited lesion in one lung, and that it is also a factor in checking hemoptysis.

C. Rivière (*Tubercle* 9:509-519, Aug. 1928) feels that all pulmonary hemorrhages signify ulcerations of the lung tissue. He points out that all small vessels that rupture will readily close by natural processes, but when a large diseased vessel lying in a diseased area has a break in its wall, the mechanical difficulties are too serious for simple remedies and only pulmonary collapse will influence the course of events. (We would not agree that all hemorrhages signify an active process.—J. B. H.—M. J. S.)

F. Dumarest and L. Bérard (*Rev. de la Tuberculose* 9:161-176, April 1928) state that the best indications for phrenicectomy are in ulcerative lesions, inactive and localized, with a tendency to spontaneous retraction. They believe that the results are not influenced by the location of the lesion or the existence of adhesions and very little by the side treated. The best results were in ulcerative apical lesions. They found phrenicectomy an adjuvant to complete an unsatisfactory pneumothorax or one compromised by subsequent reëxpansion of the lower lobe; to improve the results of high or low thoracoplasty; to supplement every extensive thoracoplasty and to aid the surgical treatment of tuberculous empyema. He feels that the results are more qualitative than quantitative but sometimes are quite unexpectedly remarkable.

F. Cardis (*Rev. de la Tuberculose* 9:177, April 1928), discussing the essential indications for artificial pneumothorax in sanatoria, feels that we have a quasi-liberty of action in the average case of about six months, during which it is permissible to await spontaneous modifications which may be sufficient in two to five months to advise abstention. If within this period there is no clear-cut improvement, one should have recourse to collapse therapy. Exceptions to the above rule should be made when such incidents as rapidly increasing cavitation, unilateral extension, pleurisy or grave hemoptysis force our hand. The more serious the lesions, the less should one be disposed to wait. (This is most important and much needed advice.—J. B. H.—M. J. S.)

M. McConkey (*Am. Rev. Tuberc.* 21:627-635, May 1930) recommends the addition of cod liver oil and tomato juice to the ordinary hospital diet in the treatment of intestinal tuberculosis complicating pulmonary disease. He feels that the method is simple, inexpensive and without contraindications and is at least as effective as artificial heliotherapy. He also recommends this treatment as a preventive measure in all patients with tubercle bacilli in their sputum, even when there is only questionable evidence of intestinal disease.

Fred H. Heise (*Am. Rev. Tuberc.* 21:664-668, May 1930) attributes the lack of relapses in patients who suffered from colds to the fact that bed treatment is instituted at the very beginning of all colds in patients at the Trudeau Sanatorium. (Excellent advice.—J. B. H.—M. J. S.)

AFTER-CARE

J. Johnstone (*Brit. J. Tuberc.* 22:113, July 1928) describes the work colonies in England.

He feels that no patient with active disease should be sent to a work colony unless he has had sanatorium or at least home care previous to his coming. Once in the colony, the patient must have his hours of labor regulated according to his fitness or condition. He found training in such occupations as motor driving and repairing, cabinet making and rural carpentry, basket making and boot repairing to be of most value to the patient in earning a living and remaining in good health.

E. Hochhauser (*New Eng. J. Med.* 199:915-917, Nov. 8, 1928) describes the work of the Altro workshops in New York City. He points out that the doctor is the boss regarding hours of work, while the factory nurse supervises the patient at work and at rest and is the welfare worker of the establishment. He points out that during 1927 approximately 92 patients received earnings of over $80,300 and that the value of sales from the year's output was over $230,000. He feels that this is not only encouraging to discharged sanatorium patients, but also to large business organizations having to deal with the tuberculosis problem among their employees. He points out that such big organizations as the Standard Oil Company, the New York Telephone Company and the Metropolitan Life Insurance Company are taking back their employees returned from sanatoria, and under medical supervision are providing carefully graduated work.

H. Linenthal (*New Eng. J. Med.* 199:926-928, Nov. 8, 1928) calls attention to the fact that for the consumptive wage earner the most important factor in maintaining health after discharge from the sanatorium is economic security and ability to provide for himself and family. He describes the placement work of the Boston Tuberculosis Association, which maintains two full-time workers. He feels that in many quarters there is still hesitancy and fear of employing the tuberculous, some of which may be due to exaggeration of the danger of contact infection by our own propaganda.

B. T. Crane (*New Eng. J. Med.* 199:918-926 Nov. 8, 1928) points out the reasons for industrial colonies for ex-patients. In his experience with the Rutland colony, breakdowns have been only slightly more numerous than among comparable individuals at rest, while the patients have, in general, been contented. He found that fully half have presented problems due to lack of experience, incorrigibility, or strange social conceptions. Yet he feels that these problems can be solved. Thus he found that the net weekly per capita deficit was reduced to $12.24; surely a low figure.

PNEUMONOCONIOSIS

J. L. Stewart (*Brit. J. Tuberc.* 23:6-11, Jan. 1929) summarizes the pathology of silicosis as follows: (1) The free silica dust, having found its way into the alveoli of the lungs, is taken up by certain cells of doubtful origin, probably endothelial, which are known as "dust" cells. At first these cells have a clear path along the lymphatics of the lung and are able to reach the tracheobronchial group of lymph nodes at the root. These nodes then enlarge and become fibrotic. If dust inhalation goes on, the lymphatic channels in the lung become blocked and the dust cells collect in pseudotubercles at the small nodes. (2) The dust cells go on accumulating in the small nodes at the bifurcation and these become larger and develop into fibrous nodules of varying size, which later coalesce and form also interstitial fibrosis. (3) If, now, tuberculosis or other infection is superimposed on the silicosis, large irregular areas of fibrosis are found with pleurisy and other complications. The second, third and fourth stages have rather characteristic x-ray appearances.

A. R. Smith and J. W. Fehnel (*J. Indust. Hyg.* 11:39-69; 69-79, Feb. 1929), examining 230 workers who are employed in New York City in underground work, as drillers, excavators, blasters, etc., found 57% of these workers to have silicosis; later stages of silicosis occurred four times as frequently in underground as above-ground or open-pit workers, and in the later stages a history of pleurisy and pneumonia was frequently encountered. They feel that measures for the protection of such employees is essential, as regards both the reduction to the greatest possible extent of the rock-dust concentration and the protection of the workman against inhalation of the dust.

R. Hollmann (*Zeitschr. f. Tuberk.* 52:394 396, 1928) examined the workers in a pencil factory for pneumonoconiosis. A five-year contact with this work revealed in no cases a pneumonoconiosis, although the "snowstorm phenomenon" was observed in 9.1% of those cases over five years in the industry and 1.6% of all workers. He concludes that graphite dust acts exactly as pure coal dust, and is harmless. The presence of pneumonoconiosis with either one of these or both is a rare finding.

MISCELLANEOUS

Harry L. Barnes & L. R. P. Barnes (*Am. Rev. Tuberc.* 20:895-900, Dec. 1929) made a study of the duration of fatal phthisis. They found that the average length of life after the onset of the disease is 36.72 months. The average for the colored race is as low as 19.59. Of interest is it that those who gave a history of hemoptysis had a higher average of life; 43.37. The same held true for those who gave a history of pleurisy, these patients surviving an average of 51 months. They also found that a positive sputum gave the patient a much worse prognosis.

Joseph Harkavy & Selian Hebald (*Am. Rev. Tuberc.* 21:644-652, May 1930), studying a group of asthmatics who also showed signs of

pulmonary tuberculosis, found that in each case they behaved the same as asthmatics with no tuberculous complications. Thus the protein-sensitive group were freed of asthmatic attacks by removing the offending proteins. Those whose attacks were due to some focus of infection benefited mostly by a change in climate during the winter months. They found operative interference to be of only limited value.

James C. Bryant (*Am. Rev. Tuberc.* 21:653-658, May 1930) describes a few cases where the removal of oral foci in the tuberculous patients was followed by beneficial results. He condemns greatly the devitalization of teeth, as they are potential foci of infection.

L. R. Williams and A. M. Hill (*New Eng. J. Med.* 201:82-91, July 11, 1929), investigating the pre-sanatorium experience of tuberculosis patients, found that 24% delayed from 1 to over 20 years before consulting a physician. The whole sanatorium group showed about 12% minimal, 43% moderately advanced, and 45% far advanced. The diagnosis was made on first consultation in only 20% of the cases. They conclude that there is a vast amount of concealed tuberculosis, which frequently does not become evident until the lungs are considerably involved. They suggest that much more attention should be given to the examination of the apparently well.

ANNUAL REPORT OF THE PUBLIC HEALTH SERVICE SUBMITTED TO CONGRESS

(Continued from Page 1244)

cidence in the United States in the late Summer and early Fall.

For three years, at least, the incidence of smallpox in the United States has been increasing. Forty-five States reported 34,685 cases of smallpox in 1927, 38,114 cases in 1928 and 41,458 cases in 1929. The disease was of the mild type and in the 45 States only 442 deaths were recorded during the three years, yet the 114,000 cases of smallpox reported during the three years represent an incalculable amount of suffering and a large economic loss to the country; all of which could have been avoided by vaccination and revaccination. One danger from smallpox lies in the fact that the virulent type of the disease may appear at any time in a community not protected by vaccination, and before the disease can be checked it may take many lives.

In connection with the work of protecting the United States from importation of dangerous diseases, 20,645 vessels, 1,056,294 passengers, and 1,380,241 seamen were inspected at domestic and insular ports, and 1,211,796 alien passengers and 968,759 alien seamen were examined by medical officers under the immigration law. Among the more important causes for certification of disease in alien passengers were trachoma, tuberculosis, feeblemindedness, insanity and venereal diseases, while the more important causes among alien seamen were the venereal diseases, trachoma and tuberculosis.

Although some progress is being made in the establishment of adequate and properly organized local health service, only about 25 per cent. of the rural population of the United States is at present so provided. It is the opinion of the Public Health Service and of the State health authorities, as well as of outstanding leaders in the field of public health in a number of educational institutions and elsewhere, that the development of efficient whole-time local health organizations through which all necessary public health activities may be conducted in proper sequence and in proper relation one to the other, is the program which will yield a far greater return on the dollar invested, in lives saved and sickness prevented among all groups of both sexes than any program limited to special diseases or to particular elements of the population that has ever been tried out or suggested.

During the year investigations relating to various public health problems have been conducted. Among the subjects that were studied may be mentioned cancer, leprosy, malaria control, Rocky Mountain spotted fever, pellagra, nutritional diseases and typhus fever. Special studies were conducted throughout the year on health problems in industry, child hygiene and stream pollution.

By an act of Congress approved May 26, 1930, the name of the Hygienic Laboratory was changed to The National Institute of Health.

Medical facilities were provided in 155 ports of the continental United States and its insular and territorial possessions for hospital and out-patient treatment for seamen from merchant vessels and other legal beneficiaries of the Public Health Service.

During the year an act of Congress established a Division of Mental Hygiene in the Public Health Service and placed the supervising and furnishing of medical and psychiatric service in Federal penal and corrective institutions under the Public Health Service. Authority was also given by Congress for studies and investigations of the abusive use of narcotics and the quantities of such drugs necessary to supply the normal and emergency medicinal and scientific requirements of the United States.

The personnel of the Public Health Service, consisting of a Corps of medical, dental, sanitary engineer and pharmacist officers, nurses, specialists and other technical and non-technical employees, at mid-year consisted of 1,476 medical officers and persons of other scientific ratings, and 3,416 general and technical employees. — *United States Public Health Service.*

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 16511

HEADACHE AND BLINDNESS

NEUROLOGICAL AND SURGICAL DEPARTMENTS

First admission. An American waiter fifty-three years old entered March 7 complaining that he could not see.

A year and a half before admission, just after returning from an automobile vacation trip. and when he was feeling as well as usual, he awoke one night feeling weak, and vomited. He continued to vomit about once an hour for three days. He felt very weak and had, he thought, some fever and at the onset a slight chill. After about a week, when he was feeling better, he noticed that things looked hazy. This became more marked until after a week he could not recognize objects. He had been wearing glasses for eight years and had recently had them changed. His oculist thought the trouble was due to his general condition. He became almost totally blind. Then the vision gradually improved until after eight weeks he was able to return to work, although things still looked hazy. He had occasional morning lacrimation. He remained in this condition until four months before admission, when his vision became progressively worse until two weeks before admission he had to stop work. The morning of admission he awoke with a severe frontoparietal headache. At admission he had vomited six times since morning and had had residual headache from time to time. He gave a vague history of precordial tingling at irregular intervals and of left-sided abdominal tenderness since the onset of the present illness.

The family history is not significant.

He gave a past history of slight edema on exertion and occasional palpitation. He denied venereal disease by symptoms. His history was otherwise negative.

Clinical examination showed an obese, very nervous and hyperesthetic man, able to distinguish fingers only at three feet. A few teeth were carious. The tonsils were large and cryptic. The left showed gross scarring. The left border of supracardiac dullness was 8 centimeters from midsternum, 1 centimeter outside the midclavicular line. The right border was 2 centimeters to the right. The cardiac dullness was 6.5 centimeters. A soft systolic murmur was heard at the base. The pulses and artery walls were normal. There was precordial hyperesthesia. The blood pressure was 115/80. The lungs were normal. The abdomen was very obese, otherwise normal. Rectal examination was negative; no hemorrhoids. The left pupil was greater than the right and slightly irregular. An ophthalmologist found the disc margins slightly blurred but the physiological cups preserved. The discs were not atrophic but were slightly pale temporally. Neurological examination showed the cranial nerves negative, sensation roughly normal, no ataxia or loss of position sense. The neurologist thought the fundi looked normal. He reported bitemporal hemianopsia. He found all the tendon reflexes equal on both sides and within normal limits of activity. The abdominals were not elicited. Past pointing, touch and temperature sense were intact throughout, also position and vibration sense. Coördination tests were well carried out.

The temperature and respirations were normal. The pulse was 60 to 100.

The question of operation was talked over with the patient's wife. March 17 he went home, to return in a week.

Second admission, March 31.

Examination was as before.

April 5 operation was done. By April 13 the wound was dry and clean, the general condition good and the vision slightly improved on the right. April 27 the patient was discharged, to return in two weeks for a second operation.

History of interval.

His vision remained improved until about May 25. Then it began to fail rapidly.

Third admission, June 4.

June 6 operation was done. That night the temperature and pulse were very high. The patient was clear mentally and the clinical condition good. By June 10 the temperature and pulse were going down to normal and the clinical condition better. On June 13 he complained of a period of dizziness. June 22 he complained of some pain over the left side of his chest and back, not aggravated by respiration. The following morning it was quite severe and worse on motion, so that he was afraid to swallow cold water. The temperature was 99°. The respirations were normal. Physical examination was negative except for râles at both bases at the end of inspiration, more on the left, and a few under the left axilla. By afternoon the pain had become more severe over the precordium. Examination showed cyanosis of the fingers. The chest was as before except for dullness at the bases. The leukocyte count was 14,000, the pulse 120, the respiration 30, the temperature 100.5°. The abdomen was slightly distended, with questionable enlargement of the liver.

That night when being lifted off the bed pan the patient suddenly began gasping for breath and choking, became very cyanotic and pulseless, and in three minutes died.

Clinical Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

I suppose you feel, as I do, that you are out of your natural sphere. It sounds like an eye case, and I don't believe you are any more expert as oculists than I am. So we have to look for the causes of eye disturbances which start outside the orbit, those especially germane to internal medicine.

1. Uremia with uremic amaurosis. I remember a boy ten years old who was brought into the ward blind from acute nephritis. After three days' treatment he could see perfectly well. Uremic blindness is suspected to be due to edema of the posterior lobes. Whatever it is, it occurs in acute or less often in chronic nephritis, and it clears up sometimes with treatment.

2. What else outside the orbit gives blindness? Tabes dorsalis with optic atrophy. That is sometimes confined to the optic nerve or is part of a spinal disease. That can be ruled out because of the fact that he was seen by an oculist, who could have recognized such a condition.

3. The fact that the vision disappeared and came back three times makes us think of brain tumor, which often causes ocular disturbance. With a careful local examination this ought to manifest itself. If that was done and nothing was found it is very hard to say that the blindness was due to brain tumor.

4. The fourth thing which I remember is ethmoid sepsis working up through the floor of the orbit into the optic nerve, causing various degrees of blindness and blindness that comes and goes.

5. Hysterical blindness, a type seen in shell-shocked men in the war. The eyes were all right, and vision could often be suddenly brought back by appropriate treatment. If you had the right combination he could be cured in a few minutes. If not, he would gradually get well in a few months. That ought to be considered; but the case does not sound like that.

NOTES ON THE PHYSICAL EXAMINATION

I know very little about this, but I should say the oculist's examination was essentially negative. I do not make out anything there that explains the blindness.

Bitemporal hemianopsia makes us think of a local lesion, probably tumor around the optic chiasm.

Lack of abdominal reflexes makes us think of multiple sclerosis. However, I never heard of a case of that disease beginning with blindness. I do not believe it is that, especially after this careful neurological examination, largely negative. Bitemporal hemianopsia is about all we have.

DIFFERENTIAL DIAGNOSIS

If they were talking with the patient's wife about operation, they were not talking about operations in general. We ought to hazard a guess as to what operation they were thinking of, and for what. I assume it was for something in the brain. They were not going to operate for uremia or for hysteria or for tabes. The only things I can think of are possible tumor or ethmoid disease. Against the latter is the fact that we have no evidence so far as I can make out of any acute inflammation. The temperature and pulse are normal. We are not told that he had had bad colds in the head. There is nothing to suggest sinus trouble. Bitemporal hemianopsia does not go with ethmoid disease so far as I know. Brain tumor is therefore the thing most in my mind. I think they made a preoperative diagnosis of cerebral tumor.

A Student: Could it have been pituitary tumor?

Dr. Cabot: Yes, but I should rather say a tumor in some direct relation to the optic chiasm. I think it is a little dangerous to say even that.

A Student: Would you consider a possible chronic or so-called "silent" abscess?

Dr. Cabot: Yes, I think that is probably right. We have no definite signs of abscess, but its signs are largely those of tumor except for constitutional evidence such as fever and leukocytosis and the presence of other foci, such as abscess of the lung. In the absence of any such evidence I should say that tumor is more probable. If it is tumor there is a good chance that it is a metastatic tumor. We must be extra careful to watch for that because it is so often forgotten.

A Student: How do you explain the rise and fall in blindness?

Dr. Cabot: I know that such changes often appear in blindness from tumor, especially if it is vascular. That is true of all malignant disease. The pressure signs of malignant disease come and go, though the tumor does not. Double sciatica due to pelvic tumors may get better and worse without any explainable reason.

A Student: What is the meaning of that abdominal tenderness?

Dr. Cabot: It looks to me as if they did not find any convincing evidence of that while the patient was in the hospital, and so threw it out.

PREOPERATIVE DIAGNOSIS APRIL 5

Suprasellar tumor.

FIRST OPERATION

A right frontoparietal bone flap was made pretty far forward, of moderate size. The dura was under definite although moderate increase of pressure. The dura was incised at the base of the skull flap and the frontal and parietal loops were retracted towards the midline. The brain was somewhat lacerated. A firm reddish

discrete tumor, undoubtedly a meningioma, was seen at the base of the skull in the frontal region, very extensive and having a broad attachment. Only a specimen of the dura could be removed. It was planned to go in at a later date through a frontal approach.

PATHOLOGIC REPORT APRIL 5

Arachnoid fibroma (meningioma).

FURTHER DISCUSSION

That verifies your diagnosis and mine. So far I do not see that we have ruled out metastatic tumor. But it looks big for that.

PREOPERATIVE DIAGNOSIS JUNE 6

(Meningioma ?) of the olfactory groove.

SECOND OPERATION

A flap of skull was made in the right frontal region, the base being in the midline of the forehead. The frontal bone was drilled just to the right of the midline in two places. These holes were connected with each other and the bone was sawed through to its outer margin. The bone was removed. The dura was under a good deal of pressure. The bone above the supraorbital ridge was rongeured away and the dura was separated from the base of the skull. This was ineffectual and it was necessary to separate the dura from the frontal lobe. On account of pressure it was impossible to retract the frontal lobe to the point where the tumor could be expressed. On this account a portion of the frontal lobes was removed with the high frequency current, first by piercing the brain in several places with a sharp pointed needle and then by using a wire loop. This procedure was carried out twice, eventually exposing the meningioma in the right frontal region at the base of the skull. The tumor was hard, rather flat and had a very broad attachment. It was obviously quite irremovable. On this account only a small portion of it was removed. The dura was left open.

PATHOLOGIC REPORT JUNE 6

Arachnoid fibroma (meningioma).

FURTHER DISCUSSION

All we can do is to hazard some guesses as to the immediate cause of death. The main cause was that meningioma which has been described. He had not had cardiac symptoms at all before operation. The heart was little if at all enlarged. A systolic murmur is nothing to make us suspect heart disease. Could he have had a postoperative pulmonary embolism? The last lines sound like that. I suppose one can get that even with a fairly normal heart, though one looks for it especially when the heart has been weakened and diseased previous to operation. Could he have had a pneumonia? It does not sound like it. We cannot rule it out, because we can have pneumonia with no more signs than we have here. We have sudden death and sudden cyanosis in a man who does not seem extremely sick before that. It sounds more like some accident, pulmonary embolism being the first thing to think of. There are some slight indications that his heart was failing before this terminal event,—dullness at the bases, râles and high pulse. The pain I do not understand. We do not expect pain in pneumonia and pulmonary embolism. Can these terminal events have anything to do with another tumor of which perhaps the one mentioned is a metastasis? I take it that the surgeon did not believe it to be metastasis; he took it to be primary in the meninges, and doubtless he was right.

DR. TRACY B. MALLORY: Yes; I think with the biopsy there is no question about that.

DR. CABOT: There is no tumor elsewhere. As the immediate cause of death I cannot think of anything except pulmonary embolism, with pneumonia as a second possibility. Of pericarditis we have no signs, but that does not rule it out. I cannot do more than question it.

A STUDENT: Could it be one of the delayed coronary embolisms?

DR. CABOT: We have no characteristic pain, and we have more cyanosis than one expects in coronary block. But I do not know how to rule it out. Coronary embolism sometimes has characteristic pain and symptoms and sometimes none at all. Any sudden death of course may be due to it. We can suggest it, but it is less probable than the other diseases mentioned.

A STUDENT: Is there a possibility of postoperative hemorrhage?

DR. CABOT: No. It does not sound like that. If we had hemorrhage in the brain it seems as if there would be pain, paralysis, coma and slowing of the pulse, and not this sudden cyanosis and pain in the chest. Those draw our attention elsewhere.

A STUDENT: Isn't that rather a late date for a pulmonary embolus? The operation was done on June 6; this was June 26.

DR. CABOT: Perhaps; but I do not know what the limits are.

A STUDENT: Do you place much importance on the history of precordial tingling?

DR. CABOT: I do not know what to say about that. I am not used to that symptom.

A STUDENT: Are those early symptoms of brain tumor coming and going typical of methyl alcohol poisoning?

DR. CABOT: I do not know much about methyl alcohol poisoning. I know it causes blindness, but what other symptoms it produces I do not know. I cannot answer that question. The history does not sound like that.

A STUDENT: Do you think there is any probability of mitral stenosis?

DR. CABOT: It ought to have been detected. We may miss mitral stenosis when we see the

patient only a little before death. But this patient was watched for three months.

A STUDENT: Might the early symptoms have been confused with migraine?

DR. CABOT: Not the blindness. I do not think anybody can say that migraine causes blindness, though it causes photophobia and impairment of vision.

A STUDENT: Might it have been hemorrhage involving the bulbar cord and so the respiratory centre?

DR. CABOT: And so producing cyanosis? They had to go in in front. We may say blood leaked down to the bulb. But they did not do any extensive or bloody operation. It sounds as if they did little after exposing the tumor. No, I do not believe that.

A STUDENT: When biopsies are performed aren't metastases sometimes scattered?

DR. MALLORY: We used to say that, but I think present opinion is rather against it. Biopsies are being done more and more all over the country, and the surgeons say that they have never seen any evidence that convinced them of the spread of tumors because of them. I do not believe they are dangerous.

A STUDENT: An operation as small as that would not be likely to produce pulmonary embolism, would it?

DR. CABOT: Poor heart action, infection, or peripheral thrombi are the things we think of as starting thrombi, a sizable piece breaking off. I must say it does not sound to me like that. Although we have some suggestions of poor heart action, we have not much. I suggest pulmonary embolus only because I cannot think of anything better to explain the terminal symptoms. What would you suggest?

A STUDENT: Cerebral hemorrhage due to sudden straining on the bed pan?

DR. CABOT: It is perfectly true, many people die on the bed pan. But this was afterwards.

A STUDENT: Could obesity and the small size of the heart cause a heart thrombus?

DR. CABOT: I should not say so.

X-RAY INTERPRETATION

The findings are consistent with hypertrophic arthritis.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Olfactory groove meningioma.
Pulmonary embolus.

DR. RICHARD C. CABOT'S DIAGNOSES

Meningioma of the olfactory groove.
Pulmonary embolism, or possibly pneumonia.

ANATOMIC DIAGNOSES

Meningioma of the olfactory groove.
Pulmonary embolus.
Infarcts of the lungs.

PATHOLOGIC DISCUSSION

DR. MALLORY: This man of course had a brain tumor. That was proved at operation,—a tumor arising from the meninges beneath the frontal lobe, a rather unusual location for a so-called meningioma. The majority lie over the temporal or frontal lobes. This was underneath. These tumors are always considered benign because they practically never metastasize and they almost never invade the brain. On the other hand they do very frequently invade the neighboring bones. There have been two cases in this hospital since I have been here where a house officer in the Outpatient Department started to remove a tumor, presumably a wen, underneath the scalp and found the tumor to be attached to the skull. Biopsies and subsequent operation proved them to be meningiomas. One does not ordinarily do brain surgery in the Outpatient Department, but only extremely good x-rays can prevent such mistakes. This tumor had involved the orbital plate, so that its removal was I am quite sure impossible.

The immediate cause of death was a massive pulmonary embolus. The cause of the pain in the chest and the cyanosis for a few hours preceding death was also pulmonary embolism. There were two medium-sized emboli which caused infarcts, one in the right middle lobe, the other in the left lower lobe. Pulmonary emboli are more commonly multiple than they are usually given credit for being. Quite frequently the development of an infarct in the lung is good warning to us to be on the watch for a larger pulmonary embolus. Now that major pulmonary emboli have been removed a few times successfully, anything which might lead one to be prepared for the emergency is well worth paying attention to. And in this case we have a very suggestive history.

DR. CABOT: What of the heart, Dr. Mallory? Why did he get those thrombi?

DR. MALLORY: The thrombi occurred locally in the venous sinuses of the dura close to the operative field. They did not arise from the heart at all. The period of sixteen days is a little long, although ten or twelve days is very common, and this is not at all beyond the possible length of time in which they occur. I think we have seen one after three weeks.

A STUDENT: Would you recommend an attempt to remove an embolus with those earlier signs?

DR. MALLORY: There would not have been much point in doing that with this patient in his hopeless condition. It is perfectly possible to remove a pulmonary embolus if one makes the diagnosis quickly enough. One has at least ten minutes in which to do the operation between the appearance of the symptoms and death.

DR. CABOT: There was nothing else in the body?

DR. MALLORY: No, nothing of any significance.

DR. CABOT: We have to stretch our ideas of the limits for postoperative pulmonary thrombi up to seventeen days after operation.

CASE 16512

A CASE OF TRIGEMINAL NEURALGIA, ENLARGEMENT OF THE LIVER AND ANEMIA

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. WYMAN RICHARDSON: This is a patient Dr. Fremont-Smith asked me to see in the Baker Memorial. He was a business man fifty-four years of age with the following history.

He had had five or six years ago a pus kidney with a stone. That kidney was removed. About two years ago he had a period of confusion and semicoma from which he recovered with a residual of slight dizziness and slight staggering. The thought was that this was cerebral arteriosclerosis. A lumbar puncture was done at that time and was entirely negative. Following this incident the patient's chief difficulty was with trigeminal neuralgia. For that he took large amounts of trichlorethylene by inhalation. Over this period of time there were occasions when he was confused and stuporous. It was thought possible that this might be due to the drug which he was taking. The question as to whether these periods of confusion were due to sclerosis or to the drug was difficult, almost impossible to decide. In the past few months the tendency to dyspnea became quite pronounced. A few months ago there was definite pallor and slight edema of the ankles. He had a moderate anemia at that time and a smear which was suggestive of a straight secondary anemia. Immediately before entrance there appeared an icteric tint in the sclerae. The neuralgia had been controlled by alcohol injections, and at the time I saw him the patient was not complaining of that particular symptom. During these two years there had been many careful examinations. The positive findings were arteriosclerosis of the vessels of the fundi, probable slight enlargement of the heart, and a liver which was palpable two or three fingerbreadths below the costal margin. The blood pressure ranged from 230/115 down to 140/80. It seemed to be extraordinarily variable. The urine showed albumin which varied from a slight trace to a very slight trace. The specific gravity was about 1.015. On some occasions there had been a trace of sugar. The blood sugar was 90 milligrams two and a half hours after breakfast. Several non-protein nitrogens were within normal limits, the highest being 40 milligrams per 100 cubic centimeters. The blood Wassermanns were consistently negative. The blood when examined for the cause of the pallor showed the hemoglobin to be 40 per cent Sahli, the red count 3,000,000 and the leukocyte count 6,000. The smear showed, as I said, findings suggestive of secondary anemia. The stools showed a negative guaiac. Dr. Fremont-Smith sent the patient to the Baker Memorial with the idea of having a complete study done to determine the cause of the anemia.

I saw him first at the Baker Memorial. At that time the patient was rather confused. It was very difficult to get anything definite about his symptoms. The history as I have presented it was given to me by Dr. Fremont-Smith.

The examination was essentially the same as it had been before except that there had appeared a slight but definite gallop rhythm at the apex of the heart. I could not make out any definite enlargement of the heart. There was nothing in particular in the chest that I could find. In the abdomen there was the definite edge of the liver two or three fingerbreadths below the right costal margin. In the midline could be felt a firm round mass. We could not decide whether that was a part of the liver or some additional mass. There was gross pitting edema of both legs and the left hand.

The second day after admission the patient was running a temperature. After that it rose markedly. He stayed in the hospital for a week, running a maximum temperature of 104° with a pulse of 110. He developed in the chest a little dullness at one base and what I thought were a few changes in the lungs. He also had a few râles at each base which might well have been due to congestion. The respirations were increased. It seemed evident that he had a definite bronchopneumonia, whatever else might be the cause of his anemia.

The additional studies that we were able to do here were few. The blood findings were essentially the same except that the leukocyte count was 8,000 to 21,000. We did a gastric analysis when he first came to be sure of the question of primary anemia. He had a low acid, but he did have 5 cubic centimeters of free hydrochloric acid. The icteric index was 8. The van den Bergh direct and indirect was simply positive, with no figure given. The non-protein nitrogen was 30. The blood Hinton was negative.

He became more and more stuporous and dyspneic. At the end of a week he died.

CLINICAL DISCUSSION

DR. MAURICE FREMONT-SMITH: In the first place here is a man who had one kidney out and shortly after that a blood pressure of 230/150. In a period of six years the blood pressure came down to well within normal limits, with a diastolic of 80. It probably was not his anemia, which he developed only at the end, that brought his blood pressure down, because it is known that a chronic nephritic who

goes into uremia and keeps a high blood pressure may nevertheless have a very marked anemia. It is interesting to speculate as to what might have been the cause for the falling blood pressure. He was perfectly able to get about until he came to the Baker Memorial. He was not suffering from inanition or weakness. It brings to my mind the question of trethalin as the cause of the decrease in blood pressure.

Trethalin or trichlorethylene as you know was discovered during the war. It was found that people who were working with this drug in cleaning fat off metal sometimes developed generalized symptoms, such as dizziness and vomiting, but very specifically anesthesia of the sensory portion of the fifth nerve without motor involvement followed inhalation of this drug. This drug was therefore used in the treatment of trigeminal neuralgia, and may be useful in the diagnosis of this condition. The diagnosis of tic douloureux can usually be made from a history of a "trigger area" and facial pain coming in severe spasms. One may make the diagnosis between attacks if the patients' lips are held apart, or if when speaking they hardly move the lips. Sometimes it will be seen that the mustache on one side is well cared for and on the other very dirty. The patients are of course protecting the area which may precipitate the attack. The usual dose of this drug is twenty-five drops on a piece of cloth to be inhaled while sitting down. Our patient was taking half an ounce at a time. He did this for long periods. I think it is quite possible that his very peculiar attacks of drowsiness and jocularity which suggested alcoholism or frontal tumor were due to the inhalation of this drug. Could it possibly have been that the action of the drug also caused a toxic liver with cirrhosis? It is supposed not to be toxic to the liver in animals. Could he have received injury to the bone marrow causing an aplastic type of anemia? But he had a good number of platelets and enough white cells. There is no real evidence that he had that.

My feeling about him was that he had (1) cirrhosis, (2) cancer, possibly of the pancreas, also generalized arteriosclerosis and cardiosclerosis.

CLINICAL DIAGNOSES

Arteriosclerotic heart disease.
Cirrhosis of the liver?
Terminal bronchopneumonia.

ANATOMIC DIAGNOSES

1. *Primary diseases.*

Cirrhosis of the liver.
Hepatoma. (Primary liver cell carcinoma.)
Arteriosclerotic heart disease.
Occlusion of the right coronary artery.

2. *Secondary or terminal lesions.*

Bronchopneumonia.
Pylephlebitis.
Atelectasis of the lungs.

3. *Historical landmarks.*

Nephrolithiasis.
Hypertrophy of the kidney.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: This case was quite a museum of pathology. He had a very considerably hypertrophied heart, about 600 grams, and complete block of the right coronary artery without any massive infarction. He had a very marked degree of cirrhosis of the liver which you can see even from your seats, in this specimen. On the cut surface many of the nodules which are present and which we should ordinarily assume were simply nodules of regeneration seem a little large for that and a little diffusely outlined. Ordinarily nodules of regeneration have rounded edges and seem almost encapsulated. Some of these nodules here seem to merge into the surrounding fibrous tissue and also feel a little harder than regenerative nodules probably would be. The gross appearance might lead one to suspect carcinoma, very possibly early primary carcinoma of the liver or so-called hepatoma. The microscopic sections are perfectly consistent with that. The liver is simply riddled with tumor. There is a much greater amount than one would expect from looking at the gross organ. No other focus of carcinoma was found. The only possibility left seems to be that in the kidney which was removed a few years ago he may have had carcinoma. On the other hand the histology does not suggest a kidney tumor. The remaining kidney was very much hypertrophied, fully twice its normal size. It is at least suggested that the diminution in blood pressure may have run more or less parallel to the hypertrophy of this kidney. His other kidney was removed for pyelonephritis and stone, and he had a stone left in this one.

The lungs showed a slight degree of bronchopneumonia and a very considerable degree of atelectasis.

Microscopically the liver showed a tumor which is strongly suggestive of a hepatoma, though I have not been able to demonstrate bile formation by the tumor cells. The liver also showed a very definite pylephlebitis which we failed to note in gross.

A PHYSICIAN: Did he have any precordial pain?

DR. FREMONT-SMITH: No.

DR. JAMES H. MEANS: What did the pancreas look like? Was there any evidence of dilatation of the veins of the stomach?

DR. MALLORY: The pancreas was negative. We did not note any dilatation of the gastric

vein. The pylephlebitis was a microscopic affair affecting only the small radicles in the liver.

DR. MEANS: Do you think slow occlusion of the coronary might account for the drop in the blood pressure?

DR. MALLORY: It might well have influenced it.

DR. MEANS: Do you think the drug had anything to do with his death?

DR. MALLORY: I should be distinctly suspicious of it, there is such a wide variety of chlorine compounds that do affect the liver. The methane series of chlorine compounds of course have very pronounced effects.

DR. MEANS: It is a very disturbing thought that this drug, so effective symptomatically, may be a severe poison. I asked Dr. Oljenick whether he had seen any evidence of poisoning from it, and he said not. But this man had used huge doses.

DR. CHESTER M. JONES: Isn't it true that in tetrachlorethane poisoning, for instance, which may be somewhat analogous, the poisoning was always acute? In those cases, which were seen during the war and were due to the use of "airplane dope", I do not recall any cases that developed cirrhosis.

DR. MALLORY: I think it would be quite possible to have damage without its showing for a long time. We may begin to hear of chronic cases in ten or fifteen years.

DR. JONES: It is very interesting that there could have been so much involvement of the liver tissue with so little to show for it either in the form of jaundice or symptoms.

A PHYSICIAN: Was there any evidence of hemorrhage?

DR. MALLORY: No.

A PHYSICIAN: Did the drop in blood pressure run parallel to the use of the drug?

DR. FREMONT-SMITH: I do not know; I do not know well enough how consistently he used the drug. He was using it off and on during a period of three or four years during which the blood pressure dropped from 230 to 140. I think Dr. Means' suggestion about the occluded coronary is an extremely good one to explain this.

A PHYSICIAN: Did he have the adrenal on the side from which the kidney had been removed?

DR. MALLORY: Yes. They were both present and normal.

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Christmas---1930

OLIVER GOLDSMITH as a physician was not a success; as a poet he assumed first rank, and from his philosophy we may still draw wisdom if that is what we are after. In the year of Our Lord one thousand, nine hundred and thirty, many of us may feel that we have less to be thankful for at the Christmas season than is ordinarily the case. It is twelve years since the war which was to end war came to its own conclusion, and still we find racial and political animosities smouldering and occasionally bursting into flame. Nations are groaning under the burden of their debts, nihilistic socialism is having a portentous fling and an era of unprecedented prosperity has been succeeded by its inevitable reaction.

Let us remember, then, Goldsmith's lines:

> Ill fares the land to hast'ning ills a prey,
> Where wealth accumulates and men decay—

and be thankful that our hands will not always be filled simply by the stretching out of them.

A famous philosopher, having studied his subject, came to the conclusion that life was not intended to be easy; that everywhere we find about us evidence of the fact that Nature intended life to be a struggle. Man does not reach the utmost in his development nor are his noblest qualities brought to the surface unless he is coping with the opposition which it is his right to meet. The knife is sharpened by contact with steel.

As we dispense the season's greetings this year, then, let us do it with a clearer eye and a firmer grip, thankful for the uses of adversity, with the hope of the final adoption of the pean of the heavenly host "on earth peace, goodwill toward men".

CHILD HEALTH AND PROTECTION

PRESIDENT ROOSEVELT in 1909 ordered a White House conference on the Care of Dependent Children. From this resulted the Children's Bureau, organized in President Taft's administration and made part of the Department of Labor when that was created in 1913. In 1919 President Wilson called a White House conference on Minimum Standards of Child Welfare. The study and insurance of the health and happiness of United States children being traditionally, according to *Time*, a presidential concern, President Hoover therefore called last year a Conference on Child Health and Protection. Dr. Ray Lyman Wilbur is chairman of this committee and Harry Everett Barnard, of Indianapolis, its director.

Last month the Conference—over 3,000 individuals—met in Washington to report the result of its investigations and to make recommendations. Of 45,000,000 children in the United States, more than 10,000,000 were found to be handicapped, as follows:

Improperly nourished	6,000,000
Defective speech	1,000,000
Weak or damaged hearts	1,000,000
Behavior problems	675,000
Mentally retarded	450,000
Tuberculous	382,000
Impaired hearing	342,000
Totally deaf	18,000
Crippled	300,000
Partially blind	50,000
Wholly blind	14,000
Delinquent	200,000
Dependent	500,000

And yet, as President Hoover said in his address, "That we be not discouraged let us bear in mind that there are 35,000,000 reasonably normal, cheerful human electrons radiating joy and mischief and hope and faith. . . . From what we know of foreign countries, I am convinced that we have a larger proportion of happy, normal children than any other country in the world. And also, on the bright side . . . we have 1,500,000 specially gifted children. There lies the future

leadership of the nation if we devote ourselves to their guidance."

Nineteen recommendations were made by the conference, eighteen constituting a bill of rights, the nineteenth recommending the organization of districts, counties and communities for child health, education and welfare, with: 1) trained full-time public health officials with public health nurses, sanitary inspectors and laboratory workers; 2) available hospital beds; 3) full-time public welfare services for the relief and aid of children in special need from poverty or misfortune, for the protection of children from abuse, neglect, exploitation and moral hazard; 4) voluntary organization of children for instruction, health and recreation.

Chairman Wilbur made plain that the states should coördinate and amplify local efforts, the Federal government limiting itself to the collection and publication of general information, statistics and scientific research.

HOUSE BILL 7884

THIS bill referred to in the letter of Dr. Walter B. Cannon* would exempt dogs from use in experiments in the District of Columbia and in the territories under control of the National government.

If this bill should pass it would strengthen the antivivisection movement.

The letter by Dr. Cannon should be read with care and the medical profession should immediately act to impress upon members of Congress the harm which would result from the passage of this bill.

Letters should be sent to senators and representatives urging adverse action.

*Page 1263.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

ROOT, J. HAROLD. Ph.B., M.D. Harvard 1918. Attending Pediatrician, Waterbury Hospital. His subject is: "Idiopathic Aplastic Anemia." Page 1225. Address: 99 North Main Street, Waterbury, Conn.

BIGELOW, GEORGE H. A.B., M.D. Harvard 1916. Doctor of Public Health, Harvard 1921. Commissioner of Public Health for Massachusetts. Address: State House, Boston. Associated with him is:

LOMBARD, HERBERT L. A.B., M.P.H., M.D. Bowdoin 1915. Director, Division of Adult Hygiene, Massachusetts Department of Public Health. Address: State House, Boston. Their subject is: "Chronic Rheumatism in Massachusetts." Page 1232.

HOWE, OLIVER H. M.D. Harvard 1886. Medical Examiner, Norfolk County, District No. 2 since 1887. School Physician of Cohasset since 1907. Examiner for various Life Insurance Companies. Surgical House Officer and Assistant to Superintendent, Boston City Hospital 1885-1887. Ex-President, Massachusetts Medico-Legal Society and Norfolk South District Medical Society. Member Local Board, Division No. 38. His subject is: "The Prolongation of Life." Page 1233. Address: North Main Street, Cohasset, Mass.

CLAPP, WILLIAM B. Last year medical student, University of Vermont. Interne, Grafton State Hospital during summer of 1930. Address: University of Vermont College of Medicine, Burlington, Vermont. Associated with him is:

COHEN, BENJAMIN. Fourth year student at Tufts College Medical School. Interne, Grafton State Hospital during the summer of 1930. Address: Tufts College Medical School, Boston, Mass. Their subject is: "Phenol Test for Urinary Albumin." Page 1237.

KILBANE, CORNELIUS V. A.B., M.D. University of Cincinnati 1920. Specializing in Roentgenology. His subject is: "Filtered Roentgen Rays in the Treatment of Keloid." Page 1238. Address: Cleveland, Ohio.

HAWES, JOHN B., 2ND. A.B., M.D. Harvard 1903. President, Boston Tuberculosis Association. Address: 11 Marlborough Street, Boston. Associated with him is:

STONE, MOSES J. M.D. Tufts College Medical School 1921. Formerly on the Staff in the Tuberculosis Department, Massachusetts State Infirmary, Rutland and Westfield State Sanatoriums. Now, Examiner in the Tuberculosis Clinics, Boston Health Department. Visiting Physician, Massachusetts Memorial Hospitals, Chest Clinic, Out-patient Department. Assistant in Medicine, Beth Israel Hospital and Boston University Medical School. Address: 11 Marlborough Street, Boston. Their subject is: "Progress in Tuberculosis." Page 1245.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

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What is the Sedimentation Test and Its Value In Gynecology?

The sedimentation reaction utilizes the speed with which red blood cells settle in a citrated column of blood.

The test can be simply and easily performed in the following manner. Draw up 0.2 c.c. of sterile 5% sodium citrate in a dry 1 c.c. syringe. Then draw in 0.8 c.c. of blood from a vein. Mix and put in a tube 6.5 cm. long and 0.5 cm. in diameter, having a 1 c.c. mark and a mark 1.8

cm. or 18 mm. below it. The time for clear plasma above the lowest mark is sedimentation time and anything over two hours is normal.

The test has assumed a place of importance as additional laboratory data both in medical and surgical fields.

Certain observers have found the test of practical value in gynecology and feel that it is of greater value than the temperature or leucocyte count. The test indicates the severity of tissue destruction.

Studies on normal women show that the sedimentation time is the same during menstruation as between periods.

A sedimentation time under thirty minutes means an active infection, under one hour latent infection. A sedimentation time, however, of two hours or over excludes all possibility of a latent or active infection.

The test should not be used in the differential diagnosis of benign and malignant new growths or of inflammatory swellings and myomata.

Such conditions as functional amenorrhea, functional uterine bleeding and uncomplicated uterine fibroid have very little influence on sedimentation time.

With endocervicitis, acute and chronic, some cases show an appreciable decrease. The average, however, remains well above the two-hour mark.

In all cases where there is a definitely localized collection of pus in the pelvis, the sedimentation time is greatly diminished—ten to thirty-five minutes.

The sedimentation time is of special value in determining the time to operate on inflammatory diseases. Supposing that the temperature, pulse and white count are down and there is little if any tenderness on examination; if the sedimentation time is still below an hour, operation should be considered as more dangerous than the clinical signs would seem to indicate.

Cases with ovarian cyst show a rather wide range in sedimentation time, depending largely upon associated and complicating adnexal pathology. In uncomplicated ovarian cyst, sedimentation time is normal.

In cases of ectopic gestation the sedimentation time is greater than would be expected in acute inflammatory conditions with similar clinical findings. After the use of radium in the treatment of cancer of the cervix or fibroid tumor of the uterus, there is a marked decrease, presumed to be due to absorption of broken-down protein substance.

It should be emphasized that the sedimentation test is not a test of the degree of inflammation but a test of the amount of tissue destruction. It is of more value in inflammations than in other diseases.

Questions of a similar nature to the above will be discussed in the *Journal* each week. They may be addressed to the Clerk of the Committee in care of the *Journal* and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

MISCELLANY

NEW COURSE FOR GRADUATES UNDER THE AUSPICES OF THE HARVARD MEDICAL SCHOOL AND THE COMMONWEALTH FUND

FRANK R. OBER, M.D., ASSISTANT DEAN

The Courses for Graduates, Harvard Medical School, has recently organized a four months' course in Medicine, Pediatrics, and Obstetrics for rural practitioners in Massachusetts. This has been made possible through a grant of $15,000 a year for five years from the Commonwealth Fund of New York.

Twelve to fifteen men can be taken care of for a period of four months and the instruction is divided as follows,—two months of medicine, one month of pediatrics, and one month of obstetrics. The medical instruction is given at the Massachusetts General, the Peter Bent Brigham, and the Boston City Hospitals, the pediatrics is given at the Children's Hospital, and probably at the Massachusetts General, and the obstetrics at the Boston Lying-In Hospital. In both pediatrics and obstetrics the number of men accepted each month is limited to two. The men taking obstetrics will live at the Lying-In Hospital and will be charged fifteen dollars a week for board and room. This combined course is so arranged that all day instruction is given in both subjects which are common to the practice of medicine, emphasis being laid on problems which are troublesome to all of us. The latest methods of diagnosis and treatment are presented in a practical manner both from the didactic and clinical aspects.

The Commonwealth Fund is interested in determining what might be done to provide brush-up courses and advanced instruction for general practitioners located in the rural districts and has selected Massachusetts and Tennessee as the states in which to start a plan that will furnish graduate instruction to practitioners in such a way as to give the doctors a course adapted to their needs and at the same time to materially assist them, so that the burden on the individual doctor is only that of leaving his practice. The Commonwealth Fund will aid five men from each of two health units to be formed in the State, and five men from the State at large, making a total of fifteen during the entire year. These men are paid a stipend of two hundred and fifty dollars a month, travel to and from Boston, and the cost of tuition.

The course is so arranged that a few men, outside of those selected by the Commonwealth Fund, may register for four consecutive months of medicine at their own expense. In no case will there be more than fifteen men in a medical section.

Those applying must be graduates of Class A schools or of Class B schools, subject to the approval

of the Administrative Board of the Harvard Medical School. Those desiring to avail themselves of the Commonwealth Fund fellowships above described should make application direct to the Commonwealth Fund, 41 East 57th Street, New York City.

A schedule of the course is appended:

SCHEDULE OF FOUR MONTHS' COURSE

TWO MONTHS MEDICINE, ONE MONTH PEDIATRICS, ONE MONTH OBSTETRICS

1st Month	2nd Month	3rd Month	4th Month	5th Month	6th Month	7th Month	8th Month	9th Month	10th Month	11th Month	12th Month
Med.								*Med.*			
P. B. B.								P. B. B.			
1								13			
2								14			
3								15			
4								16			
								17			
								18			
								19			
								20			
	Med.								*Med.*		
	M. G. H.								M. G. H.		
	1								13		
	2								14		
	3								15		
	4								16		
									17		
									18		
									19		
									20		
		Med.	*Med.*							*Med.*	*Med.*
		B. C. H.	B. C. H.							B. C. H.	B. C. H.
		*5	*5							21	21
		6	6							22	22
		7	7							23	23
		8	8							24	24
		9	9								
		10	10								
		11	11								
		12	12								
Obst.	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*	*Obst.*
L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.	L. I. H.
5	7	1	3	9	11	†13	†15	21	23	17	19
6	8	2	4	10	12	14	16	22	24	18	20
Ped.	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*	*Ped.*
M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.	M. G. H. & C. H.
7	5	3	1	11	9	†15	†13	23	21	19	17
8	6	4	2	12	10	16	14	24	22	20	18

*Four additional men (Nos. 9, 10, 11, 12) can be accepted for medicine in the third and fourth months to take their obstetrics and pediatrics during the fifth and sixth months.

†Four additional men (Nos. 13, 14, 15, 16) can be accepted for obstetrics and pediatrics in the seventh and eighth months to take their medicine during the ninth and tenth months.

P. B. B.—Peter Bent Brigham Hospital
M. G. H.—Massachusetts General Hospital
B. C. H.—Boston City Hospital
L. I. H.—Lying-In Hospital
C. H.—Children's Hospital.

GOOD SAMARITAN HOSPITAL FUND

Gifts since the report meeting of December 2 for the Good Samaritan Hospital fund amounting to $32,233 brought the total up to $146,332 according to a recent announcement made at a joint report luncheon at the Chamber of Commerce. Dr. Charles F. Wilinsky, Deputy Commissioner of Health, represented the Mayor who was to have spoken, and Thor-

vald S. Ross, treasurer of the campaign, was the other speaker on behalf of the half-million dollar fund being sought for a study of rheumatic heart disease. Robert Amory, on the board of the Community Health Association, presided.

Both speakers emphasized the superior merits of preventive medicine over curative agencies. Dr. Wilinsky said that preventive medicine has effected the reducing of the infant mortality rate by one-half during the past 30 years, in Boston, and that the tuberculosis rate had also been cut in two because of it. "Today, Boston has the lowest infant mortality rate in its history, losing only 68 babies out of every 1,000 instead of 130 in that number, as in the past. The tuberculosis rate is now only 80 per 100,000 as compared with 200 for that number of persons. What a horrible picture we should have if we should turn back the clock 50 years and show what conditions were then without preventive medicine."

Dr. Wilinsky expressed the Mayor's deep interest in the success of the campaign and the conviction that this much-needed research would be financed by those who realize what it means to the community.

Mr. Ross said that preventive medicine has steadily expanded into a science. "Serums and antitoxins to produce immunity or reduce the intensity of infection have been developed. The vast majority of its greater problems are reduced to practice—they are understood, and preventive treatments and cures are known and applied. Undiscovered sicknesses all the way up from the common cold to infantile paralysis and cancer are being intensively studied, and the suspected infections pursued in great hospitals and laboratories, but children's heart infection is not receiving adequate attention."

MORTALITY RATES

Telegraphic returns from 78 cities with a total population of thirty-five million for the week ending December 6, indicate a mortality rate of 11.9 as against a rate of 12.8 for the corresponding week of last year. The highest rate (24.6) appears for Trenton, N. J., and the lowest (2.9) for Akron, Ohio. The highest infant mortality rate (14.4) appears for Oklahoma City, Okla., and the lowest for Camden, N. J., Des Moines, Iowa, and Kansas City, Kans., which reported no infant mortality.

The annual rate for 78 cities is 11.9 for the forty-nine weeks of 1930, as against a rate of 12.6 for the corresponding weeks of 1929.

CORRESPONDENCE

INCORRECT STATEMENTS REGARDING SMALLPOX BY DR. JOHN H. FOSTER

Mr. Editor:

In an article on the practice of medicine in China and New England in the *Journal* of November 27 Dr. John H. Foster of Waterbury, Connecticut, states that "Smallpox is a constant menace in China and is *excessively rare* in the United States." With the second part of this statement I wish most decidedly to disagree. The Connecticut Commissioner of Health will disagree with Dr. Foster and so will every state health officer from California to Maine, and from Minnesota to the Gulf. There are but two countries in the whole world, namely China and India, where more smallpox is reported yearly to the authorities than appear in the health statistics of this country.

There were 579,610 cases of smallpox in the United States and its dependencies in ten years. The 17,904 cases reported in Virginia, 13,896 in Tennessee, 11,790 in Alabama, 35,152 in Minnesota, 29,549 in Iowa and 51,913 in Ohio, do not seem to me to support the idea that smallpox is an "excessively rare" disease with us.

There were 62,707 cases in the United States and its dependencies in 1919; 109,639 in 1920; 108,904 in 1921; 34,169 in 1922; 30,313 in 1923; 38,254 in 1927 and 38,805 in 1928. Forty-five states reported 41,458 cases in 1929.

No, smallpox is no *rare* disease in this country, nor will it be until we follow the example of Russia, Greece and Turkey and make universal vaccination a law in every state in the Union.

SAMUEL B. WOODWARD.

THE ANTIVIVISECTION MOVEMENT

The Department of Physiology
Harvard Medical School
240 Longwood Avenue, Boston 17, Mass.

December 15, 1930.

To the Editor
New England Journal of Medicine,
Dear Sir:

There has been introduced into the House of Representatives at Washington a bill—House Bill No. 7884—to exempt dogs from use in experiments in the District of Columbia and in the territories under control of the national government. Similar bills have been introduced in the past but have invariably been reported upon unfavorably by the Committee to which they were referred. Likewise, similar bills have been introduced into the House of Commons in England, and there also they have failed to be passed. In short, previous experience has clearly revealed that the reasons against these prohibitive measures have been overwhelmingly convincing. All recent evidence has strengthened these reasons rather than weakened them. The pending bill, therefore, should not receive favorable action. Nevertheless, it is reported that the representatives at Washington are receiving numerous appeals for its passage and that very little influence has been brought to bear on the other side.

When we consider that much of our knowledge of the action of the heart has come from study of the dog heart, that methods of determining blood pressure came from studies on the dog, that the present methods of resuscitation from drowning and electric shock were devised through experimentation on dogs, that the technic of operations on the brain, on the intestines and on the chest have been learned by proving the procedures on the dog, that most of our exact information regarding the work of the digestive glands has been learned in the same manner, that

knowledge of rickets came from studies on puppies, that the whole story of diabetes and its cure can be traced step by step in experimentation on dogs rendered diabetic, that drugs which are in daily use are efficiently tested out on dogs,—the reason for using dogs is obvious. Furthermore, the dog and man have certain natural diseases in common. Rabies is one, cancer is another, and distemper and influenza have much in common. These are conditions about which we need further information. Any progress which can be made will benefit not only man, but the dog itself. Who shall say that the effort to control the dreadful scourge of cancer shall be checked by eliminating any of the lower animals from service in laboratories devoted to medical research?

The advocates of the Dog Exemption Bill are anti-vivisectionists — usually persons ignorant of the benefits of animal experimentation, whose misplaced sympathy has led them to advocate total abolition of the use of animals for medical research. They have hit upon exemption of the dog as an entering wedge in their efforts because they know that sentiment can be readily roused in favor of this much-loved domestic animal. Opposed to them are men who have devoted their lives to the advancement of medical knowledge. They are carrying on their work under regulations which have been adopted throughout the medical schools and research institutes of the United States—regulations which impose the humane conditions under which the experiments shall be continued. Furthermore, in these institutions the Open Door Policy commonly prevails, a policy which permits representatives of humane societies who have seen operations on human beings to enter and witness similar operations on lower animals. The investigators are doing nothing for which they need apologize. Indeed, in consideration of the immense benefits to mankind and to lower animals which have accrued from research in the medical sciences, the investigators contend that their efforts warrant a whole-hearted support from the community which receives the benefits. Undoubtedly this support would be forthcoming if there were general understanding of the methods and beneficial results of animal experimentation. Tens of thousands of dogs and cats are killed annually in Boston merely to clear the streets. A very small number of these animals are put to use in the laboratories. Of the dog used by the investigator, William James wrote with appreciative understanding, "If his poor, benighted mind could only be made to catch a glimpse of the human intentions, all that is heroic in him would religiously acquiesce."

The importance of retaining the dog as a means of making progress in our solution of medical problems is so great that the medical profession should not only make its influence felt when hostile legislation is threatened, but should also take occasion to instruct interested laymen in the help which they can render in supporting the work of the investigators.

Yours very truly,

WALTER B. CANNON,

George Higginson Professor of Physiology.

THE COOPER BILL H. R. 12995

December 11, 1930.

Editor, The *New England Journal of Medicine:*

Last spring I sent out copies of the Cooper Bill H. R. 12995 which was not passed by Congress at that time but which is due to come up now to provide for federal aid in maternity and infancy work throughout the country.

It is very important that Congress should act promptly on the Bill. You will, perhaps, remember that this Bill has been accepted by both the Children's Bureau and the Public Health Service and also has the President's approval. It is now in the Committee on Interstate and Foreign Commerce in the House and pressure for an immediate hearing on it and favorable action is urgent.

In his opening message to Congress this session the President in urging the passage of "temporary federal aid for state and local health services to children and for further stamping out of communicable diseases especially in the rural sections," referred to this Bill.

Very sincerely yours,

(MRS.) AIDA DE ACOSTA BRECKINRIDGE, *Director,*
Division of Publications and Promotion.

71st Congress
2d Session

H. R. 12995

In the House of Representatives
June 16, 1930

MR. COOPER of Ohio introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce and ordered to be printed

A BILL

To provide that the United States shall coöperate with the States in promoting the general health of the rural population of the United States, and the welfare and hygiene of mothers and children.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of coördinating the general rural health and maternal and child health activities hereinafter provided for, there is hereby created a board to be known as the Federal Health Coördinating Board (hereinafter referred to as the board), which shall consist of the Surgeon General of the United States Public Health Service, who shall be the chairman, the chief of the Children's Bureau of the Department of Labor, and the Commissioner of Education of the Department of the Interior.

SEC. 2. The board shall have the power to approve or disapprove all plans providing for coöperative work between the United States and the several States under this Act, which plans shall be submitted to the board in accordance with sections 4 and 5 of this Act, and such other powers as are conferred upon it by this Act.

SEC. 3. (a) For the purpose of enabling the Public Health Service, under the general supervision of the

board, to coöperate with the State agencies of health in the development of local health units or organizations for the prevention of disease and the promotion of health among the rural population as provided in section 4 of this Act, there is hereby authorized to be appropriated for the fiscal year ending June 30, 1931, and for each fiscal year thereafter, the sum of $250,000, $5,000 of which shall be made available annually to each State in the manner and under the conditions hereinafter provided; and there are hereby authorized to be appropriated the following additional sums for such purposes, to be expended as hereinafter provided: For the fiscal year ending June 30, 1931, the sum of $750,000; for the fiscal year ending June 30, 1932, the sum of $1,000,000; for the fiscal year ending June 30, 1933, the sum of $1,250,000; for the fiscal year ending June 30, 1934, the sum of $1,500,000; for the fiscal year ending June 30, 1935, the sum of $2,000,000; and for each fiscal year thereafter, for the above purposes, the sum of $3,000,000. From each of such additional sums so much, not to exceed 5 per centum thereof, as the Secretary of the Treasury, upon recommendation of the Surgeon General of the Public Health Service, may estimate to be necessary for administering the provisions of this Act, shall be deducted for such purpose, to be available until expended, and the remainder of each of such additional sums shall be allotted to the several States in the proportion which the rural population of each State bears to the total rural population of all the States. as determined by the latest available United States census: *Provided*, That no allotment out of any of the appropriations under this Act shall be made to any State for any fiscal year until at least an equal sum has been appropriated by the legislature of such State, or has been provided by State, county, or local authority, separately or together, for the same fiscal year for rural health work within the State under this Act: *And provided further*, That after Federal funds appropriated under this Act shall have been expended in three consecutive fiscal years for the support of rural health work in any county, township, town, or other political division or subdivision of any State, the amount allotted and paid from such funds shall not exceed 25 per centum of the total funds made available, as herein provided, for the further support of such work in said division or sub-division in any fiscal year.

(b) For the purpose of enabling the Children's Bureau, under the general supervision of the board, to coöperate with the State agencies of health to promote the health and welfare of mothers and children, for five years, as provided in section 5 of this Act, there is hereby authorized to be appropriated for the fiscal year ending June 30, 1931, the sum of $1,000,000; for the fiscal year ending June 30, 1932, the sum of $1,000,000; for the fiscal year ending June 30, 1933, the sum of $1,000,000; for the fiscal year ending June 30, 1934, the sum of $1,000,000; and for the fiscal year ending June 30, 1935, the sum of $1,000,000. Subject to the provisions of this Act, the appropriations authorized in this subsection shall be apportioned among the States as follows: $10,000 to each State, and the balance among the States in the proportion which their population bears to the total population of the United States, as determined by the latest available United States census: *Provided*, That no payment shall be made in any year to any State until an equal sum has been made available by the State for the promotion of maternal and child welfare. So much not to exceed 5 per centum of the appropriation authorized for any fiscal year under this subsection, as the chief of the Children's Bureau may estimate to be necessary for administering the provisions of this Act, shall be deducted for that purpose, to be available until expended.

(c) Out of the sums deducted for administering the provisions of this Act the Children's Bureau, with the approval of the board, and the Public Health Service, with the approval of the Secretary of the Treasury, are authorized to incur such administrative expenses, including such printing and binding, the employment of such persons, the purchase of such supplies, publications, and equipment, in the District of Columbia and elsewhere, as may be necessary for carrying out the provisions of this Act.

SEC. 4. Any State desiring to avail itself of the benefits of the appropriation authorized under subsection (a) of section 3 of this Act shall, in accordance with regulations prescribed by the board, submit for each fiscal year, through its State board or agency of health, a plan for carrying out the work authorized in such subsection for such State, in the preparation of which due consideration shall be given to local taxable resources and to the applications and recommendations of local health authorities: *Provided*, That no money appropriated pursuant to the provisions of subsection (a) of section 3 of this Act shall be expended in any State until its legislature shall have accepted the provisions of this Act, except that, until the final adjournment of the first regular session held after the passage of the Act, the acceptance of this Act by the Governor shall be sufficient. When the plans of any State have been approved by the board the Secretary of the Treasury, through the Public Health Service, shall then set apart and make available in the Treasury of the United States the sum apportioned to such State for each fiscal year for support of the work under subsection (a) of section 3 within the State, and so notify the State board of health concerned.

SEC. 5. In order to secure the benefits of the appropriation authorized in subsection (b) of section 3 of this Act, a State must have accepted the provisions of the Act entitled "An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921, as amended (U. S. C., title 42, ch. 5), and shall not have repealed its acceptance of such Act, or, in case such Act has not been accepted or having been accepted such acceptance repealed, such State shall through the legislative authority thereof accept the provisions of this Act and shall through its State health agency submit to the Children's Bureau detailed plans for carrying out the provisions of sub-

section (b) of section 3 within the State, which plans shall be subject to the approval of the board. The State plans shall conform to the following conditions: First, that no more than $5,000 of the Federal funds shall be expended in any State for general State maternal and child health activities and that the balance shall be used in the promotion of permanent local services for mothers and children; second, that the plans shall be made with special reference to the problems of maternal and child hygiene in rural districts and in towns and cities of not over fifty thousand population; third, that the plans submitted shall include promoting the establishment of local health services for mothers and children and shall provide that where county or other local general health services are established or being planned the work undertaken under the terms of this Act in such county or other local health unit shall be coördinated with the general health services so as to provide or make more effective the services of the local unit to mothers and children. When the board deems the State plans to be in conformity with the provisions of this Act and reasonably appropriate and adequate to carry out its purposes it shall approve the same: *Provided*, That the plans of the States under this Act shall provide that no official or agent or representative of the State in carrying out the provisions of this Act shall enter any home or take charge of any child over the objection of the parents, or either of them, or the person standing in loco parentis or having custody of such child. Due notice of the approval by the board of State plans for promoting the welfare and hygiene of maternity and childhood shall be sent to the State agency by the board.

SEC. 6. So much of the amounts apportioned under this Act to any State for any fiscal year as remains unpaid to such State at the close thereof shall be available for expenditure in that State until the close of the succeeding fiscal year.

SEC. 7. No official, agent, or representative of the board or of any organization represented thereon shall, by virtue of this Act, have any right to enter any home over the objection of the owner or occupant thereof, or to take charge of any child over the objection of the parents, or either of them, or of the person standing in loco parentis or having custody of such child. Nothing in this Act shall be construed as limiting the power of a parent or guardian or person standing in loco parentis to determine what treatment or correction shall be provided for a child, or the agency or agencies to be employed for such purpose.

SEC. 8. Within sixty days after the approval of this Act the Secretary of the Treasury shall certify to the respective State boards of health the sum apportioned under subsection (a) of section 3 of this Act to each State for the fiscal year ending June 30, 1931, and, on or before January 20 next preceding the commencement of each succeeding fiscal year, shall make like certification for such fiscal year.

SEC. 9. Within sixty days after any appropriation authorized by subsection (b) of section 3 of this Act has been made, and as often thereafter while such appropriation remains unexpended as changed conditions may warrant, the Children's Bureau shall ascertain the amounts made available by the several States coöperating with the Children's Bureau as provided by this Act and shall certify to the Secretary of the Treasury the amount to which each State is entitled under the provisions of this Act. Such certificate shall state (1) that the State has, through its legislative authority, accepted the provisions of this Act relating to maternity and childhood, or that the State has otherwise qualified to secure the benefits of the appropriation as provided in section 3 hereof; (2) the fact that the health agency of the State has submitted to the Children's Bureau detailed plans for carrying out the provisions of this Act, and that such plans have been approved by the board; and (3) the amount to which the State is entitled under the provisions of this Act. Such certificate, when in conformity with the provisions hereof, shall, until revoked as provided in section 10 hereof, be sufficient authority to the Secretary of the Treasury to make payment to the State in accordance therewith.

SEC. 10. Each State health agency coöperating with the Children's Bureau under this Act shall make such report concerning its operation and expenditures as shall be prescribed or requested by the bureau. The Children's Bureau shall, upon request of a majority of the board, withhold any further certificate provided for in section 9 hereof whenever it is determined as to any State that the agency thereof has not properly expended the money paid to it or the moneys herein required to be made available by such State for the purposes and in accordance with the provisions of this Act. Such certificate may be withheld until such time or upon such conditions as the board may determine. When so withheld the State agency may appeal to the President of the United States who may either affirm or reverse the action of the board with such directions as he shall consider proper: *Provided*, That before any such certificate shall be withheld from any State, the chairman of the board shall give notice in writing to the authority designated to represent the State, stating specifically wherein said State has failed to comply with the provisions of this Act.

SEC. 11. No portion of any moneys apportioned under this Act for the benefit of the States shall be applied, directly or indirectly, to the purchase, erection, preservation, or repair of any building or buildings or equipment, or for the purchase or rental of any buildings or lands, nor shall any such moneys, or moneys required to be made available by any State for the purposes and in accordance with the provisions of this Act, be used for the payment of any maternity or infancy pension, stipend, or gratuity.

SEC. 12. (a) The Secretary of the Treasury shall submit a report to Congress as soon as practicable after the close of each fiscal year, giving a full account of the performance of the duties assigned by this Act to the United States Public Health Service for such year, the results accomplished thereunder,

and the expenditures of moneys authorized under subsection (a) of section 3 of this Act.

(b) The Secretary of Labor shall submit a report to Congress as soon as practicable after the close of each fiscal year, giving a full account of the performance of the duties assigned by this Act to the Children's Bureau for such year, the results accomplished thereunder, and the expenditures of moneys authorized under subsection (b) of section 3 of this Act.

SEC. 13. The Territory of Hawaii and the possession of Porto Rico shall be entitled to share the benefits of this Act upon the same terms and conditions as any of the several States.

OBITUARY

RESOLUTIONS ON THE DEATH OF DR. JOSEPH V. TAYLOR

The sudden and untimely death of Dr. Joseph Vincent Taylor in Boston on November 14, 1930, came as a distinct shock to his relatives, contemporaries, friends and patients.

He was born in Wisner, Nebraska, November 18, 1889, and attended the local public Grammar and High Schools. After one year in the University of Nebraska he transferred to the University of Wisconsin. From this institution he obtained his Bachelor's degree in 1916 and Master's degree in 1917.

During the Great War he served as an infantry officer with the American Expeditionary Forces at Archangel, Russia. He was discharged from the service with the rank of Captain, and was the recipient of the Distinguished Service Medal.

After discharge from the Army he immediately resumed his studies at Harvard Medical School, from which he received the degree Doctor of Medicine, cum laude, in 1921.

Following graduation he entered Harper Hospital, Detroit, for a short period and then accepted the position of Biochemist to the Western Pennsylvania Hospital, Pittsburgh, Pa., where he remained for eighteen months.

Immediately thereafter, Dr. Taylor entered the Boston City Hospital and served as intern on the First Surgical Service from March 1, 1923, to November 1, 1924. He then entered the Boston Lying-in Hospital as intern on December 1, 1924, and following this service became Resident Obstetrician for a period of eighteen months, during which he served the Hospital in a manner never excelled for intelligent and conscientious regard for duty.

He completed the residency, and entered the practice of obstetrics and gynecology in Boston on January 1, 1927. Shortly thereafter he was appointed to the regular staff of the Boston Lying-in Hospital on which he served faithfully until his death. In addition he held a teaching appointment in obstetrics at the Harvard Medical School.

Doctor Taylor combined with unusual intelligence, sound judgment and extreme devotion to his patients, a most agreeable and friendly personality which endeared him to associates and patients alike.

The members of the staff of the Boston Lying-in Hospital hereby place on record their deep regrets at the loss of Dr. Taylor and express to the members of his family their heartfelt sympathy.

(Signed)

FRANKLIN S. NEWELL
FREDERICK C. IRVING
JUDSON A. SMITH
ARTHUR B. DONOVAN
FOSTER S. KELLOGG
JOHN ROCK
DELOS J. BRISTOL, JR.
THOMAS R. GOETHALS
M. F. EADES
JOHN B. SWIFT, JR.
SAUL BERMAN
PAUL GUSTAFSON
MEINOLPH KAPPIUS
WILLIAM B. YOUNG.

NEWS ITEM

THE APPOINTMENT OF DR. J. C. GANT—Dr. Julius C. Gant, until recently on the faculty of the University of Colorado School of Medicine, has accepted the appointment on the resident staff of the New England Sanitarium and Hospital, Stoneham.

NOTICES

REMOVAL

Dr. George H. Washburn, 238 Commonwealth Avenue, has moved to apartment 10, 512 Beacon Street, Boston.

RADIO MESSAGES

SPONSORED BY THE STATE DEPARTMENT OF PUBLIC HEALTH, COURTESY WBZA

Every Wednesday at 5:20 P. M.

December 24—"Some Diseases We Don't Talk About—And Why Not?" Dr. N. A. Nelson.

December 31—"The Hospital and the Public Health", Dr. Henry M. Pollock.

A "Health Forum" directed by the State Department of Public Health, courtesy WEEI, began October 2, 1930 and will continue Fridays at 4:50 P. M. Queries and Answers will be broadcast.

Questions on health and prevention of disease may be sent to "Forum", State Department of Public Health, State House, Boston, Mass.

REPORTS OF MEETINGS

THE WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The Wachusett Medical Improvement Society met at the Holden Hospital on December 3, 1930.

Dr. Richard Dresser of the Memorial Hospital, Worcester, Mass., gave a most interesting paper on "X-Ray of the Chest." He demonstrated with lantern slides and showed several plates.

The meeting was well attended and much discussion followed.

WILLIAM T. KNOWLTON, *Secretary and Treasurer.*

THE ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The Essex South District Medical Society held its regular meeting at Salem Hospital, December 3, 1930.

At 5 P. M. the following clinical program was presented:

1.—Dr. Harold C. Bean. Ewing's Sarcoma.

2.—Dr. Martin T. Field. A case of ruptured appendix with complications.

3.—Dr. Stuart N. Gardner. a. A case of sub-acute Bacterial Endocarditis. b. Some recent thoughts on acute bacterial infections.

4.—Dr. Edward Peirson, Jr. Tubal Insufflation.

5.—Dr. Charles L. Curtis. a. Russell Extension method for treatment of fracture. b. Compound Comminuted fracture of elbow.

6.—Dr. W. G. Phippen. Retroperitoneal fibro-sarcoma.

7.—Dr. William V. McDermott. Multiple Sclerosis.

8.—Dr. A. C. Bishop (by title). Pneumococcic Meningitis with Pituitary tumor.

After the dinner at seven o'clock, the members reassembled in the auditorium of the new home for nurses, to listen to a talk by Dr. L. B. Morrison, of Boston, on "The Diagnosis of Colonic Lesions as seen by the Fluoroscope and Plates."

WM. T. HOPKINS, *Reporter.*

HAMPSHIRE DISTRICT MEDICAL SOCIETY

The Regular Meeting was held December 10, 1930, at the Nurses Home, Dickinson Hospital.

The following films were shown:

1. The Diagnosis and Treatment of Infections of the Hand.

2. The Development of the Fertilized Rabbit's Ovum.

F. E. O'BRIEN, M.D., *Secretary.*

NORFOLK DISTRICT MEDICAL SOCIETY

On the evening of November 25, the Norfolk District Medical Society held its meeting at the New England Deaconess Hospital, Dr. Walter Lane chairman.

Dr. Howard F. Root discussed the preoperative and postoperative medical treatment of diabetes with diet and insulin, insulin resistance, and the complications of diabetes.

For the patient being prepared for a non-emergency operation, a diet containing fifteen hundred calories is usually adequate. The proportions of: carbohydrate 112 grams, protein 66 grams, and fat 94 grams gives a total of 1566 calories and is frequently used. It has been found valuable to give carbohydrate in some easily assimilable form 3 to 6 hours before operation. Fifteen or twenty grams in the form of orange juice or oatmeal will suffice. This measure is omitted in abdominal operations or with nervous patients, since vomiting may result if the food is delayed in passing through the stomach. Whether insulin is to be given on the morning of operation depends on the patient's usual dosage. The rule is to give two-thirds of the usual morning dose.

In the postoperative treatment, one should try to get in 90 to 100 grams of carbohydrate in a day in simplest form, such as oatmeal gruel or orange juice. Since the advent of insulin there has been a yearly increase in the amount of carbohydrate given postoperatively, so that now the average at discharge is 140 grams. In the group of patients at the Deaconess Hospital, largely gangrenous feet, the diabetes has been so improved after removal of the offending part that the average insulin dosage at discharge is seven units.

Complications: Diabetics are especially prone to the development of complications, their extent depending on the age of the patient and the duration of the diabetes. The height of the blood sugar has little bearing here. The average duration of the diabetes in a recent group of surgical cases was twelve years.

Insulin Resistance:

A case of old infectious arthritis was presented with striking atrophy and flaccidity of the muscles. He had not been sugar-free on 140 units of insulin daily. Muscle tone and strength were improved by baking and massage and he is now sugar-free on 55 units of insulin daily. Carbohydrate is utilized in the muscles. Hence, disuse of muscles gives rise to insulin resistance.

The presence of infection causes definite insulin resistance. The explanation for this is still a subject of dispute. When the infection is cleared up, the patient may be kept sugar-free on much reduced doses of insulin.

Liver disorders cause resistance to insulin. One case was given 1600 units of insulin a day but went into coma. At autopsy the findings were characteristic of hemachromatosis.

Skin disturbances, not only infectious, but eczema, acne rosacea, allergic diseases, etc., cause insulin resistance.

The destruction of pancreatic tissue as by carcinoma or with gall stone complication also causes resistance to insulin.

Dr. Root mentioned the growing number of cases, which have been reported in recent literature, of primary anemia in association with diabetes, raising the question as to the primary nature of this type of anemia.

He presented a diabetic who had had drainage following a perforated appendix four years ago. Food was withheld by mouth and nourishment given for two or three weeks solely by intravenous glucose. In spite of very small doses of insulin this man had repeated insulin reactions. The reason for this is that glucose seems to act under these circumstances as a specific stimulant for the production of insulin by the pancreas. This case illustrates the danger of leaving "blanket orders" for insulin.

Dr. Leland S. McKittrick was the next speaker dealing first with the surgical aspects of diabetes. He stated that, in a diabetic with an acute abdomen, the prognosis is almost as good as in a non-diabetic provided good medical treatment is available. The risk is primarily the amount of damage the diabetes has already brought about. "Cure the surgical lesion and the patient will have a better chance to get well. It is not necessary to wait for improvement of his diabetes."

He then discussed the complications arising in the lower extremities. Gangrene may be the result of Raynaud's disease, which has a long history, occurs practically 100% in young women, and is caused by overactivity of the sympathetic nerve supply to the arteries; arteriosclerosis, on the other hand, occurs practically in individuals over fifty, has a short history, is more common in men, and is due to an obliterative process in the lumen of the vessels; or Buerger's disease, which is an infective causing thrombosis, occurring rarely in women, and usually in individuals under fifty.

Gangrene in diabetes occurs in three types: (1) infection with good arteries; (2) sclerotic vessels, partially or completely occluded and with poor collateral circulation; (3) no continuous or patent main vessel but many small collateral vessels which keep the foot alive until it is traumatized. The difference between (2) and (3) referred to above was illustrated by x-ray plates of extremities in which the vessels had been injected with a radiopaque substance.

To determine whether one is dealing with the second or third condition, the surgeon must rely on his eyes and hands. The oscillometer may be used for confirming the clinical diagnosis.

A patient, male 67, was presented with diffuse pain across the ball of the left foot. The patient is first examined lying down, then sitting up with feet dependent, thereby causing aggravation of signs and symptoms. Palpation of all peripheral vessels showed no pulsations in either right or left dorsalis pedis or posterior tibial arteries. Oscillometer showed very little difference between the two legs. The conclusion is that the vessels are about alike in both legs but that collateral circulation is more extensively developed in the right (the uninvolved foot).

Another case was presented which showed no gangrene, yet there were no palpable vessels in either leg below the groin. The conclusion is that the collateral circulation is highly developed here and the patient is safe provided his foot is not traumatized.

The point is that the purpose of the surgeon should be, in the early stages, to change the second class into the third—to stimulate collateral circulation by rest in bed, and cautious Buerger exercises so that the new channels may be formed more rapidly than the old ones are destroyed. It is fair to say that if, on a consistent régime of two weeks, the patient still has such pain that he cannot walk, the nourishment of the foot will be insufficient. If a patient has a bad toe, bad pain, and a break in the skin conservative treatment must be abandoned and amputation should be done as high as the lowest pulsation can be felt.

The next case presented by Dr. Pratt was of a young man with superficial gangrene on the outer side of one foot, the result of a burn. Sensation was absent in this region and this foot was warmer than the other, although there was no arterial pulsation even so high as the popliteal. This is explained on the basis of a paralysis of the sympathetic vasomotor control, accompanying the peripheral neuritis.

Dr. McKittrick next discussed the treatment of carbuncles stating that x-ray therapy has been disappointing and that carbuncles must be opened without causing extension of sepsis. He uses a high frequency with a slow cutting current, thrombosing the blood vessels and thereby preventing the spread of infection. There is little bleeding by this method. The slough clears up quickly and the postoperative pain is less than when the ordinary knife is used. A crucial incision is made extending to the involved area of the carbuncle, each quadrant being lifted up and packed with gauze.

After the scientific discussions refreshments were served.

THE BOSTON MEDICAL HISTORY CLUB

This meeting was held November 17, 1930. The first paper of the evening was by Dr. W. P. Coues, which was entitled "The Life of Paracelsus by Thomas Fuller 'In His Holy and Profane State,' 1642." Dr. Coues prefaced his reading by a sketch of the life of Fuller. He called attention particularly to the fact that Thomas Fuller was a contemporary and went to college with Milton and Jeremy Taylor. Dr. H. R. Viets, in his discussion, remarked that Fuller was one of the wittiest men who ever lived and was the author of the famous Worthies of England, which was also one of the first folios printed in England. It is rather a typographical curiosity because it took at least half a dozen printers to get out the edition.

The next paper of the evening was by Dr. Isador H. Coriat on "A Lost Early Manuscript of Darwin's 'Origin of Species.'" Dr. Coriat went on to say that: Evolutionary interpretations began to incubate in Darwin's mind during the voyage of the "Beagle" (1831-1835) and according to his notebook of 1837 in which he referred to the "transmutation of species", it seems that he was already a convinced evolutionist. This notebook was completed in 1838 before he had read Malthus' work on population. In June, 1842, Darwin wrote a brief abstract of his theory, and this abstract was enlarged during the summer of 1844. In the "Life and Letters" of Darwin, published in 1887, it was stated that the 1842 version could not be found. It was only later in 1896 that the manuscript was discovered hidden in a cupboard under the stairs in the house at Down. This manuscript was edited and published by Francis Darwin in 1909, the centenary of Darwin's birth, under the title of "The Foundations of the Origin of Species, a Sketch written in 1842." The volume is of great importance because there are very few instances in the history of science where one has at his disposal the earliest germ of a scientific discovery. It

is interesting to note that even in this early manuscript the words "theory of descent" were definitely used, showing that the general idea of the "Origin of Species" must even then have been more or less clearly formulated in Darwin's mind, seventeen years before the publication of the "Origin." Certain paragraphs from this sketch were embodied practically unchanged in the final publication of the "Origin of Species" in 1859. The volume was shown, together with a first American edition of the "Origin of Species."

Dr. Viets discussed this paper and told of his visit to Down House where Sir Arthur Keith is Curator and it is hoped that a volume of manuscripts will be published under Dr. Keith's editorship within the next few years.

James F. Ballard read a paper entitled "Glimpses Into the Life of a Boston Medical Hero of Colonial Times," which was devoted to a preliminary account of the life of John Dennison Hartshorn, a medical apprentice to Dr. Gardiner of Boston, during the years 1752-1756. Mr. Ballard told something of the Gardiner family and gave a sketch of Dr. Hartshorn as revealed in his diary and then read many interesting excerpts from the diary. One of the interesting points brought out was that young Hartshorn read a total of 122 separate books on medicine, 1753-1755, which must have been obtainable somewhere in Boston.

The meeting was concluded with a demonstration by Miss Blake Beem of recent historical accessions to the Boston Medical Library. Of particular interest was a collection of manuscripts recently given to the Library by Mr. Charles Taylor, consisting of letters and documents of Dr. James H. Pierpont of Portsmouth, N. H. 1786-1839. Miss Beem showed two manuscript fee bills dated 1806 and 1818 which were signed by all the doctors of Portsmouth and commented on the various items listed on the two bills. A long letter to Dr. Pierpont from Dr. Boardman of New York described the cholera epidemic which ravaged that city in 1832. Miss Beem then showed a unique imprint of Helkiah Crooke's "Description of the Body of Man" published in London, 1616. This particular edition is not in any other library or in England and is not recorded in any of the bibliographies and is probably unique. The book was first printed in 1615 and the second edition in 1631. There was also shown the distillery book of Brunschwig, published in 1500, the 1766 Opera of William Harvey, manuscript of Daniel Drake's discourse on "Intemperance" delivered at Columbus, Ohio in 1831 and a very rare story of Frontier Life in America entitled "Odd Leaves from the Life of a Louisiana Swamp Doctor" by Madison Tensas, first published at Philadelphia in 1843 and reprinted in Philadelphia in 1858.

"CARE OF THE PATIENT" LECTURE BEFORE THE STUDENTS OF THE HARVARD MEDICAL SCHOOL

The second of the series of lectures on "The Care of the Patient" was given at Harvard Medical School at 5 P. M. Wednesday, November 19, 1930.

Dr. Edwin A. Locke introduced the speaker, Dr. David Riesman, Professor of Clinical Medicine at the University of Pennsylvania medical school. Dr. Riesman prefaced his remarks by quoting Brown, "Art uses one eye, science the other, but wisdom uses both." He stated that it is possible to fix approximately the beginning of the science of medicine at the time of Herodotus but the art goes back to an indefinite time beyond, astrology being the only science to vie with medicine in antiquity.

He paid tribute to the work of Dr. Richard Cabot in the field of social service, and to Dr. Francis Peabody, saying that it was largely through them that we have come to realize that diet and medicine, alone, are not sufficient for the treatment of the sick.

The tendency to ignore the patient because of absorbing interest in his disease and laboratory investigation reached its height in Germany. Now, the cry everywhere is "Back to Hippocrates." The elements constituting the "Art of Medicine" may be classified as subjective, those personal attributes which the physician must have, and objective, the methods he must employ. Under subjective were mentioned: 1. Understanding the patient on a psychological basis, as opposed to maudlin sympathy. 2. Confidence, which begets imperturbability. 3. Ambition and enthusiasm, which will make the doctor a lifelong student. 4. Intellectual honesty, which scorns deceit and bluff. 5. Dignity, which is now attainable by other means than a Vandyke beard. 6. Punctuality, without giving the appearance of haste.

Under objective were stressed the importance of patience, an understanding of heredity and constitutional types, a careful history and thorough physical examination.

The question of what to tell the patient is often a difficult one. "Be ever careful not to banish hope, even at a time when there seems to be no ground for it." There may be. If the patient has tuberculosis he must always be told, as a protection to society. When there is danger of sudden death, some reliable member of the family should be told, and the patient induced tactfully to make a will.

As to the physical care of the patient, Dr. Riesman stressed the importance of good nursing, proper food, specific written directions, and alertness for such complications as urinary retention, bed sores, and discharges.

The physician should attend all operations on his own patients and be present at death.

In closing Dr. Riesman emphasized that he did not wish to depreciate in the least the vast importance of the laboratory and special methods of clinical study, but rather to point out that these innovations are in themselves inadequate to the proper care of the patient.

HARVARD MEDICAL SOCIETY

Dr. Harvey Cushing presided at the meeting of the Harvard Medical Society held at the Peter Bent Brigham Hospital on November 25 at eight-fifteen o'clock.

Dr. Marks of the medical service presented the first case. The patient, a 42-year-old American house-

wife, entered the hospital complaining of increasing constipation for three years. During the past year and a half she had noticed an increase in weight, swelling of the ankles, thirst, and a decrease in appetite, and a gradual loss of interest in social activities. For the past six months there had been a marked puffiness of the face and dryness of the skin. Physical examination revealed an obese, quiet woman with slowing of speech and mental ability. The hair was dry, coarse and rather sparse. Her red cell count was 3,800,000 and the urine was essentially normal. Her basal metabolic rate was minus sixteen at a time when her temperature was slightly elevated.

She was presented as a typical case of myxedema which had been diagnosed outside the hospital as nephritis.

Dr. Hoen of the neurological service presented a case which had been transferred from the Boston Lying-In Hospital in deep coma. The patient was seven months pregnant and complained of nausea and vomiting. This, however, had not ceased as rapidly as in her previous pregnancies. Three days before admission she had become weak and drowsy. There were also severe frontal headaches on the left side, a slight difficulty in use of the right arm and some dimness of vision. Physical examination revealed bilateral choking of the discs, slightly greater on the left and bilateral extensor response of plantar reflexes. Further observation showed a slightly diminished response, upon painful stimulation of the right arm. Operation was performed and a bloody meningioma was found in the left frontal region. Later the patient had labor pains and was delivered of a still-born foetus.

Dr. Paul W. Harrison, of Arabia, gave a very interesting and amusing discourse on medicine and surgery in Arabia. The extreme poverty of the natives and the great prevalence of malaria create a background against which all medical treatment is directed. The resistance of the patients is consequently extremely low and many of them succumb to slight infections which would not affect the average person. Postoperative management is extremely difficult to apply in the conventional way because the ignorant patients may break some of the cardinal rules of treatment. Dr. Harrison went on to say that serious consequences of such disregard were surprisingly few. Many interesting anecdotes were related and he pointed out that Arabia, as a field of medical endeavor, would never become monotonous.

The amphitheatre was filled by a large and appreciative audience.

THE MEETING OF THE R. C. R. C. CLUB

On the invitation of the Secretary, Dr. Harvey P. Towle, the members and guests assembled at the Harvard Club December 9, to enjoy a social hour at dinner and hear Dr. William S. Baer of Baltimore and Dr. Timothy Leary in especially interesting and instructive addresses. Dr. Baer gave an account of the treatment of osteomyelitis by means of maggots. He told of his experience when serving in the field in the Great War when two severely injured men who had been lying in no man's land for seven days after an engagement were brought in. These men had extensive and serious wounds which on examination were found to be the hosts of great quantities of maggots.

On removing the maggots, much to the surprise of the observers, the wounds were found to be clean, without odor and filling with healthy granulations, the patients subsequently making good recoveries.

This experience led Dr. Baer to make a study of the treatment of a large number of cases of osteomyelitis coming under his care by the use of maggots with the result that cures were effected in a few months whereas under classical treatments the disease was likely to continue over years with the necessity oftentimes of repeated operations.

He felt that the use of antiseptic washes inhibited the natural healing power of tissues.

In selecting the maggots to be used it was found that those of the blue or green bottle flies are most effective and that some other varieties are not safe.

He described the life cycle of this species of fly explaining that adequate breeding functions of these flies required the custom of polyandry in order to enable the female of the species to produce viriie eggs. After the eggs are produced they are put into a weak sterilizing solution in order to obviate any extraneous infection and after being hatched the maggots are introduced into wounds prepared to receive them by sufficiently wide exposure to the diseased areas and removal of sequestra. New groups of maggots are introduced from time to time, the implantations covering about six weeks usually when the diseased areas have been displaced by healthy granulations.

In order to have maggots available, successive colonies are raised.

The details of the production and application of maggots were illustrated on the screen and by moving pictures.

In addition to the impressive reports of treating cases of osteomyelitis, Dr. Baer showed several series of cases of tuberculous abscesses in which the same maggot treatment was equally effective, but he was not now able to say that destruction of bone by the tubercle bacillus is as amenable to this method as has been shown in osteomyelitis.

Several other possibilities were referred to by the speaker which may mean that maggots will occupy an important position in dealing with infections.

The second speaker of the evening, Dr. Timothy Leary, prefaced his remarks by explaining that the subject of the medico-legal aspects of alcohol included such a variety of complicated problems that he felt obliged to limit himself to a comparatively brief consideration of the effect of alcohol chiefly from a medical standpoint.

He defined alcohol as a narcotic drug and not a stimulant explaining some of the apparent increased physical and mental activity following the ingestion of alcohol as due to the effect of this drug on the cortical cells in the gray matter covering the hemispheres of the cerebrum and cerebellum thereby inhibiting the higher controls and liberating the activities of the lower centers with the further explana-

tion that there was diminished power of coördination and effective control of muscular functions so that technical efficiency is impaired. This effect on the higher centers is shown by the removal of some of the mental depressions incident to the strain of modern life and thereby providing an escape from some of the exhaustion and irritation of those subject to mental strain and that alcohol occupies a useful place in dealing with some emergencies, as for example, angina and cardiac arhythmias.

Even though alcohol is recognized as a poison when taken in excess or when not indicated, more people die from the improper use of foods than from alcohol.

He referred to the differences of opinion as to what constitutes drunkenness as defined for medico-legal purposes and explained the varying exhibitions of that state as dependent to some extent on the relation of the intake of alcohol to that of food, because alcohol quickly enters the blood stream and its concentration in the circulation determines the effect to a considerable degree. A clear recital was given of the studies of Raymond Pearl and others on the effect of alcohol on the germ cells which tend to show a selective action on cells of low vitality. This accounts for the apparent effect on the production of superior strains of poultry and the quality and longevity of human progeny.

Some of the unsolved problems of alcohol in its relation to disease were explained using cirrhosis of the liver as an example where the experimental use of alcohol had failed to develop this disease although it is fully recognized that the steady drinker may be the victim of this malady. His experience tends to demonstrate that the alcoholic habitué does not develop chronic nephritis or arteriosclerosis and indeed it may be a prevention of the latter condition. The chronic drinker, however, is known to add to the mortality of pneumonia.

As for pathology, aside from evidence cited above there is no alcoholic picture other than oedema of the brain and fatty changes in the liver. It has been noted that the bodies of alcoholic subjects disintegrate more rapidly than those of total abstainers.

No evidence has been found indicative of the etiological effect of alcohol on mental disease although mental deficiency and degeneracy may go hand in hand because of the absence of intelligent control of one's habits. As to longevity there is no statistical evidence indicating that moderate drinking has any appreciable effect.

Dr. Leary closed by showing a series of charts depicting the mortality rates in the years preceding prohibition, those of the period in the early years of this experiment and the use of the acquired knowledge as to how and where to obtain alcohol after the effect of the first restrictions had worn off.

An analysis of the working of the liquor law in Sweden was also shown.

This brief abstract is far from being an adequate report of this interesting address. Dr. Leary would confer a great favor on society if he would prepare a paper founded on his extensive and highly technical knowledge of the subject of alcohol with respect to its relation to medical practice and its sociological importance.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

December 19—The New England Roentgen Ray Society. Details appear on page 1224, issue of December 11.

January 7—Cardiac Course. See page 854, issue of October 23.

March 23-27, 1931—Fifteenth annual clinical session of the American College of Physicians. Detailed notice appears on page 790, issue of April 17.

July 27-31, 1931—Third International Congress of Radiology, Paris. Complete notice appears on page 385, issue of August 21.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

April 16, 1931—Taunton Woman's Club.
September 17, 1931.

Essex South District Medical Society

Wednesday, January 7, 1931—Beverly Hospital. Clinic 5 P. M. Dinner 7 P. M. Symposium on Duodenal Ulcer. Speakers: Dr. Franklin White, Medical Aspect. Dr. A. W. George, X-ray Aspect. Dr. P. P. Johnson, Surgical Aspect.

Wednesday, February 4, 1931—Council meeting, Boston.

Wednesday, February 11, 1931—Danvers State Hospital. Clinic at 5 P. M. Dinner 7 P. M. Speaker: Dr. Bryant E. Moulton, Assistant Director of the Judge Baker Foundation. Subject: "Juvenile Delinquency."

Wednesday, March 4, 1931—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M. Speaker: Dr. Arthur Allen, of Boston. Subject: "Neurovascular Surgery, including injections for varicose ulcer."

Thursday, May 7, 1931—Censors meet at Salem Hospital at 3:30 P. M.

Tuesday, May 12, 1931—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. Morris Fishbein, Editor of the A. M. A. Journal of Chicago. Subject: "History of Medical Cults." Ladies invited.

Franklin District Medical Society

January, 1931-May, 1931—The meetings are held on the second Tuesdays of January, March and May at 11 A. M. at the Weldon Hotel, Greenfield.

Middlesex East District Medical Society

January 14, 1931—Harvard Club of Boston.
March 11, 1931—At Reading.
May 13, 1931—At Wakefield.

Norfolk South District Medical Society

The meetings for the ensuing year are as follows: January 8, 1931, February 5, 1931, March 5, 1931, April 2, 1931, May 7, 1931.

All meetings begin at 12 noon. The February meeting will be held at the Quincy City Hospital. All other meetings will be held at the Norfolk County Hospital, South Braintree.

The censors will meet on May 7 at 11:30 A. M. at the Norfolk County Hospital, South Braintree.

NATHAN R. PILLSBURY, Secretary.

Suffolk District Medical Society

January 28-April 29—Combined meetings with the Boston Medical Library. These meetings will be held as specified below on Wednesdays, at 8:15 P. M.

January 28, 1931—General meeting in association with the Boston Medical Library at the Boston Medical Library. "The Practice of Medicine in Relation to Public Health Activities." Speakers to be announced later.

February 25, 1931—Clinical Program, Boston City Hospital.

March 25, 1931—Clinical Program, Beth Israel Hospital.

April 29, 1931—Annual Meeting. Election of Officers. Boston Medical Library.

The medical profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D.,
President, Suffolk District Medical Society.
LELAND S. McKITTRICK, M.D.,
Secretary, Suffolk District Medical Society.
HILBERT F. DAY, M.D.,
Boston Medical Library.